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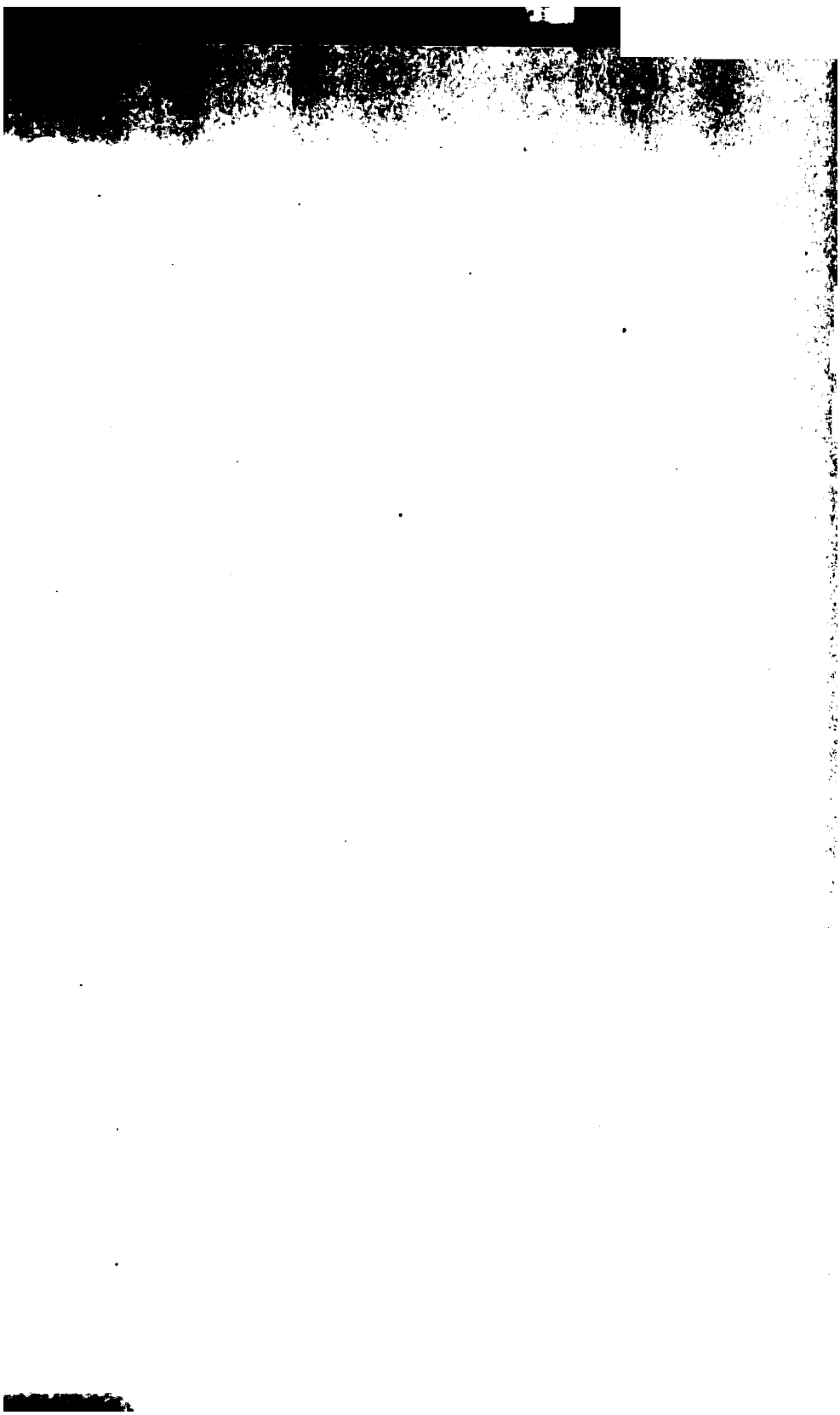

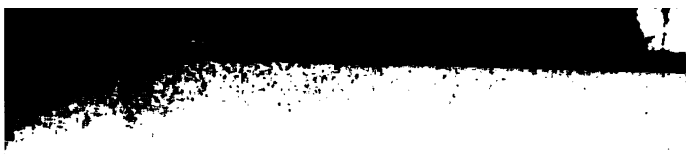

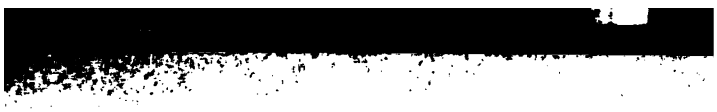

THE

MISCELLANEOUS DOCUMENTS

OF THE

HOUSE OF REPRESENTATIVES

FOR THE

SECOND SESSION OF THE FIFTY-THIRD CONGRESS.

1893-'94.

IN FORTY VOLUMES.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1895.

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Fifty-third Congress, Second Session.

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COMMERCE, MANUFACTURES, ETC.

VOL. XLV.

Nos. 164, 165, 166, and 167.

MAY, JUNE, JULY, AND AUGUST, 1894.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1894.

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CONSULAR REPORTS.

COMMERCE, MANUFACTURES, ETC.

VOL. XLV. MAY, 1894. No. 164.

MARACAIBO NAVIGATION REPORT—1893.

I inclose the statement of arrivals of vessels at this port during the past calendar year. Setting aside the record of the arrivals of the regular American steamers, it will be noticed that the Danish flag, as has been the case for the past few years, is the best represented. Of American sailing vessels (all schooners) of from 200 to 400 tons, there were six arrivals—one less than in 1892. It is believed, however, that in the future American sailing vessels will be rarely seen in this port, as the Red D line of steamers from New York, which gives most excellent and regular service, has reduced its rates for freights to such an extent that it is no longer an object to charter sailing vessels on the score of economy. It is satisfactory to note that the said steamship line, the only one on this coast displaying the American flag, has, in spite of many drawbacks, continued to monopolize the carrying trade between the two countries, and, by its excellent management, promptness, and exactness in complying with its obligations and its very liberal system of dealing with its patrons, has placed itself beyond all danger of competition.

Various attempts have been made to drive our flag from this coast, and more than one enterprise, I am glad to say, has come to grief in consequence.

The Red D management, however, has had to encounter serious drawbacks within the last two years; and at one time, owing to the diminution of mutual trade between the United States and Venezuela, in consequence of the imposition by us of duties upon Venezuelan products which hitherto enjoyed free entry, it was a question whether sufficient freight could be obtained to warrant the continuance of the very liberal methods pursued from the first by this company. Its reputation, however, was such that many European exporters, whose goods, for the causes already stated, began to be in increased demand, preferred, instead of sending them to this coast by the direct steamers from their own ports, to ship their merchandise to New York and there reload it on the vessels of the American line, the extra expense and handling being warranted, in their opinion, by the more careful and satisfactory service given. This is a high compliment to American management, and no doubt well deserved.

Naturally it was more satisfactory when the same steamers arrived here loaded to the hatches with goods of almost exclusively American manufacture and production, and when nearly every bag of coffee conveyed by them on the home trip was to be sold and consumed in the United States, giving to the Venezuelan merchants large credits in New York to exchange for our own goods; but under all circumstances it is most fortunate that in spite of difficulties the line has been able to follow its steady routine without interruption.

The navigation of Lake Maracaibo and its tributaries is steadily increasing, and is to-day of great importance.

With the development of railway communication from lake and river points into the rich agricultural regions of the interior, water communication between the termini of the roads and this city must be in a constantly increasing proportion, as, on account of the topographical conditions of this section, no important railway line can reach Maracaibo itself except at an expense not to be thought of at present.

There are many rivers flowing into the lake, draining regions rich in natural resources whose development would amply repay large outlays, which are navigable for vessels of considerable tonnage except for the bars at their mouths. This is a characteristic of all the tributaries of Lake Maracaibo, as it is, indeed, of the lake itself. When free entrance is given into these streams, then the development of the great lake basin may be seriously begun and rich returns may be expected.

Arrivals of vessels at Maracaibo during the year ending December 31, 1893.

Flag.	Steamers.	Barks.	Brigs.	Schooners.	Total.
American	38	.....	.....	6	44
British	8	.....	1	7	16
French	.....	1	2	.....	3
German	.....	3	6	.....	9
Danish	.....	4	12	.....	16
Norwegian	.....	1	.....	.....	1
Italian	.....	2	.....	.....	2
Dutch	.....	.....	.....	11	11
Colombian	.....	.....	.....	1	1
Venezuelan	.....	.....	.....	22	22
Total	46	11	21	47	125

E. H. PLUMACHER,

MARACAIBO, *January 20, 1894.* *Consul.*

THE BRADFORD CONDITIONING HOUSE.

A conditioning house is an establishment in which the true weight, length, and condition of articles of trade and commerce are determined scientifically. This is a matter on which there has always existed a difference of opinion between British exporters and American importers. Though Eng-

land and the United States use the same weights and measures, there are invariably differences between the weights and measurements of yarns, wools, and pieces from the time of their shipment from this point and their final distribution in America; so great, in fact, as to have a considerable bearing on the profits of the transaction. Certain exporters have a definite understanding of some kind with their American clients on this subject and manage to evade serious difficulty. Others, however, have constant friction, and only recently one of the largest exporting houses in Bradford was compelled to allow an American customer a 5 per cent discount because of the shrinkage in a large invoice of goods, though it was alleged by the exporter that it entirely obliterated the profit of the transaction. All this may be prevented by the importer of either raw material, partially manufactured, or wholly finished goods demanding that the product be accompanied by a certificate from a legally authorized conditioning house. As a rule, the charges would be light; but they would be added to the price of the goods, unless there was a distinct understanding to the contrary. Another plan would be for the establishment of a conditioning house in New York, or any other American port of entry, for the purpose of conditioning goods there on exactly the lines followed here. The system would be equally useful for testing and conditioning American and foreign goods.

THE BRADFORD ESTABLISHMENT.

The conditioning house here is owned and operated by the municipality. It is the only one in England, and was established three years ago under the Parliamentary act of 1887. The idea originated with the Bradford Chamber of Commerce and was adopted by the corporation on that body's suggestion. Its popularity has been of steady growth, and last year the business transacted was twice that of the previous year. Merchants and spinners engaged chiefly in the home trade are now making great use of it for the testing of bulk lots of wool, tops, yarns, and waste. The tests on this account alone amount to 45 per cent of the total business transacted, the remaining 55 per cent of the business of the enterprise being export trade. A large percentage of the tests are made to settle disputes, the certificate of the conditioning house being accepted as a basis of arbitration. Bradford is fortunate in having as manager of the concern a gentleman of splendid scientific attainments, who is an enthusiast in the business, and who understands thoroughly the very complicated machinery used in making the tests. Tests are made by the exact and logical metric system, and the results then rendered into the English weights or measurements. They are also figured direct by the English system. Being worked under Parliamentary act, all certificates granted are legal evidence in a court of law, and are accepted as absolutely correct as to weight, condition, and description of goods on the date such goods passed through the conditioning house. The objects to be effected are to determine:

(1) The average amount of moisture contained in wool, tops, noils, and yarns submitted for examination.

(2) The correct gross weight of bales, bags, cases, skeps, sheets, and packages of goods, and the tare thereof.

(3) The net conditioned weights of sample lots of wool, tops, noils, and yarns after scouring, cleaning, and drying.

(4) The true counts, lengths, twists, and strengths of yarns.

(5) The measurement of lengths in piece goods.

The system adopted is much the same as that in general use on the Continent. In France, Germany, and in many other countries of Europe there is a large number of these institutions, some of colossal size, notably the one at Roubaix, where about 100,000,000 kilograms of material are "conditioned" annually. As has been stated, the Bradford house, though of recent origin, is meeting with popular favor, both for home and export trade, and is being used as a means of ascertaining and accepting "the correct invoice weight" of goods at their normal (official) condition. Many other branches of testing are undertaken for the settlement of disputes and claims. The tests are made with every care that science and experience can suggest, and by the use of the best machinery and testing apparatus. I was struck with wonder in making a tour of the establishment. The puzzling machinery, the drying of wool in hot receptacles, the mazes of yarns being tested for strength, the piles of different material, the clicking and ticking of curious instruments, all combined, are calculated to have a mystifying effect upon a novice. All tests are made in duplicate, and the results and calculations worked out by separate methods and separate persons, so as to insure perfect accuracy. An official certificate is given showing the result of each test. The strictest confidence is observed, and the results of tests are made known only to the persons who send the articles to be tested. Although the official condition is given only for bulk lots—that is, when the whole consignment has been sent to the conditioning house—a special note, marked "Sample Test Note," is given for samples drawn by the buyer or seller elsewhere.

HOW TESTS ARE MADE.

On the arrival of the bulk lots, the gross weights of the sheets, bales, bags, or packages are taken by two persons independently. The tares, if it be so desired, or if it be practicable, are taken in the same manner. A certain number of samples are then drawn for the purpose of testing their condition, and the bulk can at once be taken away. The official certificate will follow by post or otherwise as soon as practicable on the completion of the tests and calculations. If any bulk lot is left on the premises after the certificate is made out, a charge per day for warehouse room is made.

The amount of material to be taken from bulk lots necessary for testing is: For wool, noils, and waste, about 2 pounds from each bag; for tops, about 1½ pounds from each bag; for yarns in hanks, about 2 pounds in each 1,000 pounds; for yarns on bobbins, 20 to 40 bobbins, or about 2 pounds for each 500 pounds weight.

The samples drawn are taken from various parts of the lots in such manner as to insure a fair average. Before a test is made each lot is divided into

three parts, two of which are tested and the third reserved to check, in case of need, the results of the two first, should one result vary more than one-half of one per cent from the other.

The calculations are made as follows: The weight of the samples when absolutely dry having been ascertained, the standard percentage of moisture is added to it to give the correct invoice weight.

The counts of yarns are ascertained by the correct measurement of the yards contained in one pound avoirdupois of yarn in standard condition as ascertained from separate hanks or bobbins. The scales upon which the yarn is weighed are adjusted to one milligram.

The strength of yarns is determined by the average of at least five separate tests of 80 yards in one lea on a 54-inch reel—that is, one-seventh of a hank (worsted).

The twist of yarns is determined by the average of ten separate tests of 10 inches each to form one test.

The lengths of hanks are determined by measuring, without overlapping, on a reel, the exact length and with the tension regulated for each count.

CLIMATIC CONDITIONS—LOSS AND REGAIN OF MOISTURE.

The differences between English merchants or manufacturers and their customers in the United States arise from the climatic conditions of the two countries. Material uniformly shrinks in weight or length upon its arrival on the other side of the Atlantic, because there is less dampness or humidity in the atmosphere there. In a very large shipment of goods this shrinkage sometimes seems absurdly large, and affects materially the financial aspect of the transaction. The standard and official allowance for moisture in various materials, raw and manufactured, has been fixed, first, by trade customs and usage extending over many years, and generally adopted throughout the north of Europe; second, by the verification (scientifically) and decisions of the chambers of commerce in England and on the Continent. These allowances for moisture are based on the average hydroscopic conditions of the atmosphere during a year in the north of Europe, indicating how much moisture absolutely dry material will regain by exposure to the open atmosphere.

The atmosphere in the United States (or in the greater portion of the country) contains on an average a less degree of moisture than that of northern Europe, and probably in conditioning for export to the United States the standard regain allowance for moisture would have to be rearranged. Statistics show that the variation on wool, raw and manufactured, is about 2 per cent, so that, if the allowance here were 16 per cent, such goods would lose 2 per cent on being exported to the American or United States atmosphere. Therefore, should American importers of wool, yarns, or pieces from this district desire to have such goods conditioned for moisture, it could be on the present system with a reduction of 2 per cent, or the standard for the United States could be adjusted by scientific observation and the material arrive in that country weighing or measuring, on an average, ex-

actly pound for pound or yard for yard as shown by the official certificate from the Bradford conditioning house. It is certainly high time some such system was adopted, thus ending forever the disputes in this connection. In view of the expected large exports of raw material from this district under the new conditions (should the tariff be readjusted as anticipated) these questions become of great interest to commerce on both sides of the ocean. The present standard allowance and regain per cent on different materials is as follows:

Description.	For moisture per pound.	Regain.
	Oz. Dr.	*Per cent.*
Wools	2 3¼	16
Tops:		
Combed with oil	2 9	19
Combed without oil	2 7½	18¼
Noils	1 15¼	14
Yarns:		
Worsted	2 7½	18¼
Cotton	1 4¼	8½
Silk	1 9¼	11

As stated above, on an average 2 per cent may be subtracted from this standard for regain for the United States in wool materials.

RATES OF CHARGES.

The rates of charges are as follows:

For weighing only:		
Wool, noils, waste in sheets, bags, or bales	per bag...	$0.04
Tops and yarns in bags or sheets	do.....	.04
Yarns in bales or cases	per cwt...	.02
Tares of empty sheets, bags, or packages	each...	.02
If a certificate of weights be required a minimum charge of 24 cents must be paid.		
For conditioning from bulk lots:		
Wool, 2 samples per bale or sheet	per test...	.24
Noils, 2 samples per bale or sheet	do.....	.24
Tops, 2 samples per bale or sheet	do.....	.24
Hank yarns, 2 tests per 600 pounds	do.....	.24
Spool, tube, or bobbin yarns, 2 tests per case or skep	do.....	.48
For conditioning from sample lots:		
Wool, noils, tops, or hank yarns	do.....	.24
Spool, tube, or bobbin yarns	do.....	.48
For yarns:		
Counts, twist, strength	do.....	.36
Lengths of hanks	do.....	.73
For scouring, cleansing, drying, and conditioning:		
2-pound samples	do.....	.73
Ether process (test for oil, grease, etc., in tops, yarns, and cloths)	do.....	1.21
Chemical test for the proportion of cotton and wool in mixed goods and gum in raw silks	per test...	1.21

For warehousing (goods may be left on the premises on payment of 2 cents per bag or package per day or part of a day after the lapse of 24 hours.)

Oils:

Flash point	per test...	1.21
Saponification	do.....	2.43
Specific gravity	do.....	1.21

Or $3.65 combined.

In conclusion, permit me to say that, should this subject be deemed of sufficient importance to those interested in imports and manufactures, I shall be glad to furnish any further information or data obtainable.

CLAUDE MEEKER,
Consul.

BRADFORD, *January 26, 1894.*

[Inclosure.]

FORM OF CERTIFICATE OF BRADFORD CONDITIONING HOUSE.

Entry No..... Prog. No.....

COUNTY BOROUGH OF BRADFORD.

[SEAL] CONDITIONING HOUSE.

The Bradford Corporation (Various Powers) Act, 1887.

Bradford, ...*18*...

Delivered by.....

.....Gross weight being.....lbs.

.....Tare being.....lbs.

Net weight being.....lbs.

lbs. oz. drs.

.....Lots extracted from the above, weighing net.....

resulting after testing absolutely dry.....

or loss.....per lb.

or total dry weight.....lbs. or.....per cent.

Official regain.....per cent.....lbs. or.....per cent.

Correct invoice weight.....lbs. or.....per cent.

Loss or gain.....lbs. or.....per cent.

Original weight.....lbs. or.....per cent.

CHARGES.	£	s.	d.
Tests.....			
Weighing....			
Repacking...			
Duplicates...			
Postage.....			
.....			

I hereby certify that the above is a correct return of the tests made by me of the samples referred to. In testimony whereof the corporate common seal of the said borough has been affixed hereto this day of 18 .

Signed.....

Manager.

Verified by

.....

[CORPORATE SEAL.]

RETAIL PRICES IN GERMANY.

The Statistische Correspondenz has published the following average prices for the German Empire during the calendar year 1893, as compared with the like prices for 1892:

Articles.		1893.	1892.
Wheat	per 100 pounds	$1.62	$1.93
Rye	do	1.44	1.90
Barley	do	1.52	1.68
Oats	do	1.69	1.60
Table pease	do	2.43	2.71
Table beans	do	2.65	2.85
Lentils	do	4.95	4.97
Table potatoes	do	.48	.70
Straw	do	.55	.52
Hay	do	.92	.68
Beef	per pound	.13½	.13½
Pork	do	.15½	.15½
Veal	do	.13½	.13½
Mutton	do	.13 1/10	.13⅜
Domestic smoked bacon	do	.18½	.18½
Table butter	do	.25½	.24⅝
Wheat flour	do	.03 9/11	.03 7/11
Rye flour	do	.02 7/10	.03⅜
Java rice	do	.05 83/100	.05 83/100
Java coffee (raw)	do	.30⅝	.38⅝
Domestic hog lard	do	.18 17/100	.17 17/100
Eggs	per dozen	.18	.16 8/10

The average price of the following articles showed a decline:

Articles.	Decline.	Articles.	Decline.
	Per cent.		*Per cent.*
Potatoes	31.4	Barley	8.9
Rye	26.1	Beans	7.3
Rye flour	21.9	Beef	3.9
Wheat	20.2	Mutton	2.4
Wheat flour	14.7	Veal	1.6
Pease	10	Lentils	0.4

The following articles were dearer:

Articles.	Increase.	Articles.	Increase.
	Per cent.		*Per cent.*
Hay	35.5	Lard	2.4
Straw	9	Butter	1.3
Eggs	6.2	Bacon	1.2
Oats	5.4	Coffee	1.1

The extreme average prices varied greatly in different parts of the Empire, as follows:

Articles.		Highest price.		Lowest price.	
Wheat	per 100 pounds	Treves	$1.90	Breslau	$1.50
Rye	do	do	1.77	Bromberg	1.30
Barley	do	Halle	1.80	Königsberg	1.34
Oats	do	Coblentz	1.96	Köslin	1.50
Pease	do	Berlin	3.47	Breslau	1.51
Beans	do	Köslin	4.33	do	1.51
Potatoes	do	Aix la Chapelle	.67	Köslin	.32
Straw	do	Treves	.82	Königsberg	.41
Hay	do	Aix la Chapelle	1.52	Stralsund	.60
Beef	per pound	do	.15 7/16	Köslin	.11 1/2
Pork	do	do	.18 3/4	Gleinitz	.12 9/16
Veal	do	do	.18 3/4	Köslin	.11 1/16
Mutton	do	do	.17 1/16	Hanau	.10 7/16
Bacon	do	Breslau	.23 5/16	Paderborn	.16 7/16
Butter	do	Aix la Chapelle	.28 3/4	Osnabrück	.20 1/16
Wheat flour	do	Hanau and Coblentz	.04 33/100	Stettin, Cassel, etc.	.02 81/100
Rice	do	Königsberg	.07 1/16	Reuss	.04 3/16
Java coffee	do	Treves	.34 3/4	Hanau	.28 3/16
Lard	do	Königsberg	.21 33/100	Osnabrück	.16 1/2
Eggs	per dozen	Reuss	.26 1/2	Posen	.13 5/16

WM. C. DREHER,
Consular Agent.

GUBEN, *January 31, 1894.*

YUNNAN AND THE TREATY PORT OF MENGTSZ.

I take from the decennial customs reports some facts relating to the new treaty port—Mengtsz.

This port was opened to trade under article II of the *Convention Additionelle* between France and China, signed the 26th of June, 1887. The customs staff arrived at Mengtsz the 15th of July, 1889, after a journey of one hundred and three days from Canton, of which time more than one-fourth was spent at Po-se waiting for transportation coolies.

Mengtsz is situated in Yunnan, 40 miles from the Red River, on whose left bank there is a port of entry called Manhao. The problem of navigating the Red River by steam has not been solved, the river having proved to be too shallow. Steam launches to tow native craft are now to be used. Piracy has made the Red River route precarious.

A revolt of the Black Flags force occurred in 1890. The leader—Wei Ming Kao—crossed over into Tonkin and was captured and died in confinement.

There are good telegraph facilities.

The province is slowly recovering from the scourge of the civil war. The imports and exports have increased from 1,104,007 taels in 1890 to 1,530,007 taels in 1891.

The importation of opium is prohibited by treaty. The poppy is grown throughout the province. Very little opium is exported.

The rate of exchange for copper cash has continually gone down. In August, 1889, a tael was worth 1,509 cash, while in December, 1891, it was worth 1,707 cash. The cost of provisions has gone up.

The curse of the province of Yunnan is the bubonic fever. Mystery surrounds its origin. It is epidemic in summer. Its first victims are rats, which rush madly into the presence of human beings, and, after capering around, fall dead. Domestic animals suffer next. With human beings the symptoms are high fever accompanied by excessive thirst and violent deliriousness, ending usually in loss of consciousness. In a few hours an enlargement of a gland takes place in the form of a small, hard lump, and the patient generally dies at the end of the second or early on the third day. Musk is one of the specifics used in its treatment, and sometimes the bubo is excised. The course of the epidemic is erratic. Whole neighborhoods will be passed over, to be visited later or to escape altogether. In 1891 two houses just opposite the magistrate's yamen, within which the customs people live and containing about fifty inmates, lost eighteen persons, and there was only one other death in that street, though dead rats were found on the floors of the customs quarters. In three months the mortality in Mengtsz, having 15,000 population, was 1,000.

The population of Yunnan is variously estimated at from 4,000,000 to 11,000,000. The Chinese constitute one-third of the population. Sixty per cent of the males can not read. Among the aborigines only a few can read.

The province is mountainous. Excepting a short section of the Red River and of the Heng, the streams are not navigable.

The staple products for food are bamboo shoots, barley, beans, buckwheat, groundnuts, maize, millet, oats, pease, potatoes, rice, sugar cane, tea, and wheat. The fruits are apples, apricots, oranges, peaches, pears, persimmons, plums, and pomegranates. Among animal products there are beeswax, hams, hides, honey, horns, musk, skins, and white wax. Among sundries are cotton, flax, fungus, hemp, opium, rhubarb, and tobacco.

There are few manufactures. They include cotton cloth, felt rugs, ironware, brass ware, and silver jewelry.

Mining is the chief resource. The known products of the mines are amber, cinnabar, coal, copper, gold, iron, lead, marble, orpiment, salt, silver, tin, and zinc; also some jade and other precious stones. The rebellion crippled the mines, and they have not yet recovered. Iron comes first and copper second in importance. Copper for making cash is transported to Peking in large quantities. Twenty odd galena mines are enumerated. Tin mines are found near Mengtsz, which in one year produced 100,000 piculs (1 picul = 133⅓ pounds). The tin is cast in slabs 42 inches long, 10 inches wide, and 1½ inches thick.

There is no bank at Mengtsz, but there are two at the capital. There are no postal facilities except Government couriers and two postal companies at the capital.

The tariff in force at Mengtsz is a special one, under which goods entering China across the Tonkin frontier pay transit dues at the customs and pay no likin, and all imports not on the ad valorem list pay only seven-tenths and exports only six-tenths of the regular tariff rates. By decree of the French authorities, all products, except opium, enter Tonkin free, and even opium is free if duly sealed by the Tonkin customs.

The Catholics began mission work in Yunnan two hundred years ago. They have now twenty-three foreign priests and 10,000 converts. The Protestants date from 1881 and are represented by the China Inland Mission and the Bible Christians. They have in Yunnan twelve men and nine women and twelve baptized adherents.

There are numbers of guilds, some of which are charitable and religious.

It is supposed that the future of Yunnan, owing to its mines, will be prosperous.

CHARLES DENBY,
Minister.

PEKING, *December 28, 1893.*

COTTON-SPINNING IN GERMANY.

Fine spinning is making rapid progress in Germany, especially in Saxony.

SPINDLES IN EUROPE.

In 1892, exclusive of Alsace and Lorraine, there were in the Empire twenty-seven firms with upwards of 40,000 spindles each; of these, ten had each 60,000 and two over 100,000 each—one in Augsburg (111,780) and one in Leipsic (130,000). In Oldham, the heart of Lancashire, where England's biggest firms are found, the average number of spindles in a spinning mill is 60,000 to 65,000. The largest concern in England, possibly in the world, has 450,000.

Russian Poland has one firm—in Lodz—with 250,000 spindles; Zurich one with 247,000.

Since 1877 German spindles have increased 28 per cent; English, 25 per cent. From 1870 to 1878 the increase of spindles in England was about 6,000,000; from 1878 to 1890, about 1,000,000. Since 1878 England's spinners have been embarrassed by events begun in 1874. The strike of 1892, due to a reduction of pay, had its real origin in the unfavorable conditions of England's cotton-spinning mills in times as far back as above indicated.

PRODUCTION OF YARN.

The production of German yarn (cotton) has more than kept pace with the increase in spindles, for new inventions in spinning mules and frames have marked the last fifteen or twenty years. In 1876 the exports of yarn from England to Germany bore the ratio of 17½ to 100 compared with Ger-

many's own production; in 1891 this ratio was reduced to 8 to 100. The cause of this is to be found in the creation of large concerns (stock companies) and a better differentiation of labor. In the production of fine yarns England's skilled spinners and splendid climate (naturally moist enough for fine spinning) were deemed at one time to have made this industry safe from foreign competition.

The skill and perseverance of Saxon spinners since 1879, and especially since 1887, have resulted in yarns fine as 100 and 120 English. In this way the home demand has been met, and English yarns are fast disappearing from German markets, for finer yarns than 120 are not in demand. For the last two years Leipsic and Chemnitz have been producing warp yarns which Germany could not produce before that date. In 1891 Bavaria spun 100,000 kilograms and Alsace 970,000 kilograms of yarns finer than 60; Saxony spun 1,300,000 kilograms, taking first place among German states in spinning.

All this has been accomplished by attention to details, by selecting or sorting the cottons, by keeping the spinning machines clean and in excellent running order, by projecting vapors into the spinning room, etc.

It has paid, perhaps, but poorly; but it is some satisfaction, say spinners, to pluck from England some of her long-worn laurels. England, too, has been spurred to new efforts. Firms here that spun fine have gone back to coarse, not finding profit enough in the 80, 90, 100, and 120. In conversation with leading spinners I have learned that Sea Island and Egyptian cottons, *i. e.*, long staple cottons, are best suited to fine spinning. I learned also that a warm vapor in the spinning and weaving room is best suited to fine work; still further that Switzerland and Alsace, both more mountainous than New England, and almost, if not fully, as dry, spin, or have spun, as fine yarn as the mules and frames of England.

Slowly, surely, steadily, by honest, earnest, intelligent effort, German spinners have fitted themselves to compete with England, not only here, but in other markets wherein her monopoly seemed sure. Possessed of great patience, unrivaled powers of imitation, schools in which their industrial captains are splendidly trained, economical in the use of material and in the avoidance of losses, the Germans face the future determined to meet England in yarns, cloths, and other manufactures.

Number of spindles in Germany.

Districts.	Number.	Per cent.
Prussia	1,344,250	22.2
Alsace-Lorraine	1,400,000	23
Bavaria	1,165,636	19.1
Saxony	1,331,427	22
Würtemberg	435,885	7.2
Baden	395,134	6.5
Total	6,072,332	100

A single city in Massachusetts (Fall River) as far back as 1877 had 1,284,701 spindles, almost as many as either Prussia, Alsace-Lorraine, or Saxony.

J. C. MONAGHAN,
Consul.

CHEMNITZ, *December 29, 1893.*

GERMAN LIVE STOCK.

On December 1, 1892, an enumeration was made of the cattle in Germany, the result of which has just been given to the public in the Reichsanzeiger (Imperial Advertiser), the official organ of the Government, as follows:

Number and value of live stock in Germany on December 1, 1892.

Political division.	Horses.		Neat cattle.		
	Number.	Value.	Number.	Value.	Weight.
					Tons.[a]
Prussia	2,653,644	$294,838,517	9,871,381	$464,358,206	3,452,905.3
Bavaria	369,035	45,044,498	3,337,978	158,393,688	1,042,161.4
Saxony	148,499	26,985,630	664,833	36,675,228	251,165.5
Würtemberg	101,679	10,381,488	970,588	44,760,993	300,836
Baden	67,595	9,240,040	634,984	33,852,096	213,046.2
Hesse	52,439	5,816,363	381,641	17,164,845	111,281.4
Mecklenburg-Schwerin	96,046	12,575,991	301,751	13,605,842	102,415.2
Saxe-Weimar	19,121	2,704,536	119,720	6,677,351	45,628.8
Mecklenburg-Strelitz	18,768	2,301,317	46,630	2,138,239	15,866.3
Oldenburg	38,881	4,954,588	234,086	10,429,564	74,748.3
Brunswick	31,682	5,736,276	113,798	7,045,490	45,040.2
Saxe-Meiningen	6,279	907,565	68,237	3,437,814	27,683.7
Saxe-Altenburg	11,009	1,106,152	65,438	3,543,629	24,041.8
Saxe-Coburg-Gotha	9,211	1,118,528	61,679	3,176,014	23,263.6
Anhalt	17,360	2,490,884	59,985	3,932,759	25,418.9
Schwarzburg-Sondershausen	4,472	650,858	21,964	1,029,659	7,550.9
Schwarzburg-Rudolstadt	3,094	448,582	19,847	865,701	6,553.8
Waldeck	6,381	732,730	25,602	1,061,789	8,612.8
Reuss (elder line)	1,691	350,383	13,015	704,503	4,946.7
Reuss (younger line)	3,911	561,918	32,136	1,577,583	11,590.2
Schaumburg-Lippe	3,075	533,715	10,910	668,946	4,168.9
Lippe	8,967	1,640,486	35,350	1,620,875	12,535.8
Lübeck	3,438	401,672	8,236	344,885	2,521.5
Bremen	5,715	651,691	15,494	875,602	4,777.1
Hamburg	16,937	2,508,520	13,168	622,512	4,150.7
Alsace-Lorraine	137,417	12,962,979	487,367	25,278,408	163,174.8
Total	3,836,346	447,645,917	17,555,818	843,842,232	5,986,085.8
Total January 10, 1883	3,522,545	399,521,484	15,786,764	731,674,879	5,062,038.3
Increase	313,801	48,124,433	1,769,054	112,167,353	924,047.5

[a] Tons of 2,240 pounds.

Number and value of live stock in Germany on December 1, 1892—Continued.

Political division.	Sheep.		Swine.		
	Number.	Value.	Number.	Value.	Weight.*
					Tons.†
Prussia	10,209,544	$37,461,128	7,785,447	$104,496,256	220,235.2
Bavaria	968,414	3,660,820	1,358,744	16,965,020	29,431.8
Saxony	105,194	654,952	433,800	5,441,513	11,183.9
Würtemberg	385,620	1,529,102	394,616	4,338,763	6,240.9
Baden	98,107	463,576	390,464	6,214,584	9,867.1
Hesse	91,277	402,172	246,913	3,408,374	6,108.4
Mecklenburg-Schwerin	732,177	3,021,033	318,659	4,706,688	11,824.9
Saxe-Weimar	113,208	514,484	122,974	1,721,430	3,223.3
Mecklenburg-Strelitz	161,957	699,981	53,694	888,763	2,906.4
Oldenburg	139,595	429,304	133,456	1,350,959	2,942.6
Brunswick	178,552	874,245	141,215	2,204,475	6,063.8
Saxe-Meiningen	44,349	189,947	62,487	895,665	1,666.9
Saxe-Altenburg	14,165	50,932	53,800	457,816	1,008.3
Saxe-Coburg-Gotha	58,069	233,382	71,336	1,184,050	1,600.6
Anhalt	110,107	552,183	72,506	1,324,089	3,215.9
Schwarzburg-Sondershausen	47,420	186,949	28,801	307,162	720.5
Schwarzburg-Rudolstadt	29,946	114,525	24,846	307,662	821.5
Waldeck	52,566	211,867	27,469	350,217	714.8
Reuss (elder line)	2,468	11,888	7,979	139,134	179.8
Reuss (younger line)	11,064	43,316	21,295	272,012	470
Schaumburg-Lippe	2,682	12,495	19,473	221,649	880.6
Lippe	27,092	111,788	64,453	957,854	2,131.4
Lübeck	4,007	15,779	7,605	127,080	358.7
Bremen	1,127	9,305	9,995	194,922	266.6
Hamburg	3,602	15,874	12,456	224,982	506.6
Alsace-Lorraine	97,450	363,354	370,630	4,246,372	8,059
Total	13,589,759	51,824,333	12,174,513	162,947,439	332,623.5
Total January 10, 1883	19,189,715	72,966,706	9,206,195	113,454,243	239,531.8
Increase	.....	.....	2,968,318	49,493,196	93,091.7
Decrease	5,599,956	21,142,373	.....	.....	.....

*Swine a year or more old. †Tons of 2,240 pounds.

The decrease in the number of sheep is said by the press to be due to the conversion of pastures into agricultural land and diminution of stock in consequence.

The past summer played havoc with the farm animals of Germany, through its excessive dryness, which caused a failure of the fodder crops and brought on a famine. As already reported to the Department, cattle were slaughtered by thousands through inability to feed them. In Würtemberg an official count made on December 1, 1893, revealed a loss of 30 to 40 per cent in neat cattle in a number of places, and the loss throughout the Kingdom for the year was 195,728 head, or a trifle less than 20 per cent, the number having dropped from 970,588 to 774,860. The value in money of these animals lost is computed at $8,000,000; but as their meat brought from $3,500,000 to $5,000,000 at ridiculously low, sacrificing prices, the net money loss to the farmers of Würtemberg was between $3,000,000 and $5,000,000. The worst feature about the matter is that by this decimation a serious check has been given, through the loss in cows and calves, to cattle-

raising in Würtemberg and wherever else the wholesale destruction of stock took place.

Statistics for Baden, taken at or about the same time, show a loss of 80,845 animals last summer in that Duchy, or 12.7 per cent of the whole number. In Alsace-Lorraine the losses were very heavy, but I have seen no returns as to the actual figures. Bavaria also suffered badly. When the figures for the whole Empire appear, a tremendous loss will be made manifest, which it will take years to make up.

JAMES H. SMITH,
Commercial Agent.

MAYENCE, *January 6, 1894.*

WOMEN IN THE ENGLISH TEXTILE INDUSTRIES.

The investigations of the four lady commissioners into the conditions of women's work in various industries in Great Britain have recently been made public. These reports form a "blue book" of some 350 pages. It is my purpose, however, to deal only with the reports of Miss May E. Abraham upon the employment of women in the cotton industry of Lancashire and Cheshire and in the textile trades (worsted, woolen, shoddy, silk, and cotton manufacture) of Yorkshire. For the purpose of her inquiry over 170 mills in Lancashire and Cheshire and over 70 mills, besides a great number of the homes of the operatives, in Yorkshire were visited.

COMPETITION BETWEEN MEN AND WOMEN.

Lancashire.—Unlike Yorkshire, all weavers in Lancashire are paid alike, and men and women do the same work. Many women in Lancashire earn as weavers about $5.83 per week all the year through, whereas in Yorkshire $4.38 per week is an exceptional wage for women weavers and is seldom maintained for any length of time. The wages of weavers in Lancashire—men and women—when in full employment, are equal, on an average, to those of the best men weavers, when in full employment, in the highest-paid district of Yorkshire. Miss Abraham found no general preference given to women over men, except in Wigan, where the organization is weak and the wages so low that few men are ready to accept them without protest. In other districts there are rare instances in which women are preferred; but in no instance is there any rule against the employment of men, except at one mill in Tyldesley, where, owing to the men being attracted to the collieries, only one or two remained in the mill. The firm decided that under these circumstances it would be better to have women only. Ring and throstle spinning, upon which women are employed, competes to a slight extent with mule spinning, upon which men are employed. In the former better cotton and more steam are required, uncovered spindles can not be used, nor counts be spun above 40s. For these reasons mule spinners do

not anticipate any serious results from the present competition; and, though a number of firms have already ring and throstle frames in use and a few are adopting them in place of mules, it does not seem likely in any district that the women, whose work is paid at a much lower rate, will replace the men to any serious extent. A mule spinner earns about $8.51 per week, while a ring or throstle spinner earns only $3.40 or $3.65 per week. In Bolton and other districts near Manchester, roller covering, which was formerly done by men who were paid about $7.29 per week, is now done by women, who are paid $2.92 to $3.65 per week. In northern and northeastern Lancashire this work is done entirely by men.

Yorkshire.—In Yorkshire weaving and wool-combing are the two branches of textile manufacture in which women compete largely with men. In most of the other branches the work is recognized as belonging exclusively to one or the other. In Bradford, Halifax, and Leeds few men are to be found in the cloth-weaving sheds except those employed as overlookers or as weavers upon looms considered too heavy for women to work. In the carpet mills of Halifax men and women compete, to a certain extent, for the same work as weavers, though here also it is upon the Jacquard or heavier looms that the men are more frequently employed. In the largest Halifax carpet mill men and women are engaged upon the same work, the women being paid upon a lower scale than the men, viz: Women, average wage per week, $3.34; men, $5.26. The firm stated in explanation of this difference that in the heavier parts of the work the women require assistance, which is not the case with the men. So far the weaving of Brussels carpets has been done only by men in this mill, but at another large Halifax mill women are now engaged upon this work. In the cloth mills of these three districts—Bradford, Huddersfield, and Leeds—men and women engaged upon the same work at the loom receive the same pay. In the Huddersfield district the proportion of men to women among the weavers is much greater than it is in the districts of Bradford, Halifax, or Leeds, and in the Huddersfield district alone there is a weaver's scale, according to which women are paid from 15 to 50 per cent below men. The proportion of women, is, however, rapidly increasing, and Miss Abraham found many firms where this scale is not in operation. At some places she found that men and women were paid alike upon the women's scale. At other firms men were paid at a slightly higher rate than women, the women's scale being the basis of calculation on all classes of work. The tendency with all employers is to substitute women's labor for that of men, and some have almost entirely done so. In some mills none but women are employed, and Miss Abraham found one employer who had offered his men weavers $24.33 each if they would find employment elsewhere. In wool combing, which is mainly a Bradford trade, a large number of women attend to machines during the day which men attend to at night. The same work is done by some men in the daytime, but, whether they do it by night or day, they are paid at a higher rate than the women. The average rate earned by women is $2.92 per week and by men $4.38.

FINES AND DEDUCTIONS.

According to Miss Abraham, the mill workers in both Lancashire and Yorkshire complain most bitterly of the extent of fines and deductions to which they are subjected. These fines may be classed under two heads—those inflicted for discipline and those for damages.

In Lancashire "fines for late attendance" are in force at most mills, and range from 2 to 12 cents. At many mills, in addition to the fines, the gates are locked for periods varying from five minutes to two hours.

Sometimes, especially in the Burnley district, a number of "sick weavers" are permitted to attend every morning on the chance of getting looms left vacant owing to the illness of a permanent weaver. In case the regular weavers arrive later than the time of grace allowed, these "sick weavers" are put upon the looms for the day.

The weavers' associations object to the present system of fines for late attendance, although they endeavor to secure punctuality on the part of their members by other means. In Rochdale the union secretary, upon receiving a complaint with regard to unpunctuality, attended himself the following morning at the place where it had occurred, and excluded for the day all those who were not there at three minutes past 6. This action on his part was accepted without any ill will and no complaint of unpunctuality has since been made by the firm.

In Yorkshire "disciplinary fines" are mainly for late attendance at starting and in returning to work after meal hours, and they are inflicted upon time and piece workers alike. They begin, as a rule, at 2 cents for the first five minutes lost and reach from 6 to 12 cents, according to the time. Sometimes the fines are presented to the local infirmary or applied for the benefit of the workers attached to the firm.

The heaviest complaints of the workers refer to fines for "damages," though the classes of fault for which fines are inflicted vary in the two counties.

In Lancashire there is no recognized system of "mending" the cotton cloth after it has left the weaver. It is generally too poor to repay such extra attention even if it is to be given by the weavers themselves. For this reason also fines inflicted as damages are as a rule lighter in Lancashire; the heaviest, taking one alone, seldom exceeding 12 cents. Miss Abraham found cases where, though the fines are actually lower than in Yorkshire, they are not lower in proportion to the value of the cloth. Sometimes the weaver buys the piece (mill 205, where its price was $9.34), sometimes the full piece wage is taken, and sometimes 12 cents is deducted when the wage value of the piece is only 16 cents. Of course, many of these pieces are woven in one week, and the fines may amount to as much at the end of the week, if the damage is repeated, as does the single fine paid by the Yorkshire weaver. Miss Abraham says:

In every district I received complaints from the weavers with regard to the infliction of fines for what is known as "black oil," that is, for the staining of cloth during the process of weaving it by oil dropping from some part of the loom. It is admitted by employers that the stains may not have been caused by any carelessness on the part of the weaver; and it is stated by the weavers that the damage is seldom due to their neglect, but is more frequently caused by the condition of the "picking band," for which the tackler should be held responsible. The weavers further state that when the oil supplied is of an inferior quality it is

impossible to prevent it "flying" on to the cloth. At a number of mills the weavers are allowed to wash out the oil stains at their own cost, and at a few mills this is done at the cost of the firm.

In Yorkshire the class of workers most commonly fined—the weavers—state that in many cases the "tuners" are responsible for the damages for which the weavers are fined. They also state that many damages are wholly unavoidable, and that some are caused by the use of inferior material. Miss Abraham says:

The majority of firms fine heavily and without any system, free power being frequently left to the "percher," *i. e.*, the man who inspects the piece when it comes from the loom. In many cases the fines imposed amount to the wage earned on the piece. For instance, in one mill a weaver was fined $1.46 for the Jacquard dropping ten times. This was the full piece wage, and the damage was the "tuner's" fault. The following week, for the same damage, the full piece wage—$2.79—was stopped; and again the following week the same amount also—the full piece wage—was stopped, making in three weeks a total of $7.05. These three pieces, after they had been "milled," were passed as "perfect," and the weaver claimed the return of the money which she had been fined. She was allowed to buy the first piece on which she had earned $1.46, and on the other two she could only obtain $2.43 of the $5.59 she had been fined, although all the pieces were passed "perfect" and the original damages were not her fault. At the same firm she has been fined $8.51 upon a $10.09 piece. All damages again were the "tuner's" fault, and the fine had been imposed by the bookkeeper. The weaver appealed from the bookkeeper to the master, who reduced the fine from $8.51 to $2.43. This reduction is important as proving the absence of system which prevails. At another mill a weaver was fined $2.79 upon a $3.81 piece for "broken picks." The piece, when finished, was passed as "perfect," but the money, though claimed, was not returned. In some firms the weavers have to do their own mending, the time thus occupied being equivalent to a fine. At one mill, if a shuttle from a neighbor's loom makes a "trap" in a weaver's piece, the weaver has to mend the "trap." This may occupy three hours. At another mill menders are constantly fined their piece wage, and are also fined for not having mended "hard-twined ends," which can not be seen until after the piece has been dyed and can not, therefore, be seen by the mender. Menders are not shown the piece when the fine is imposed, and when they ask to see it, in order to be satisfied it is theirs and that there has been neglect on their part, they are threatened with dismissal.

The deductions made are mostly for hot water and cleaning lavatories. In Lancashire the charge for hot water is as a rule 2 and 3 cents per week and in Yorkshire 2 cents per week. "With reference to the deductions for hot water," says the lady assistant commissioner, "very little complaint is made unless the water supplied is bad, as in mill 180, or is charged for whether required or not, as in mill 321." For the cleaning of lavatories the charge is in Lancashire 2 cents per month and in Yorkshire 2 cents per fortnight. The women sometimes have the option of taking it in turns to clean the lavatories themselves or of paying to have it done. They generally prefer to pay.

In Lancashire deductions are occasionally made for the renewal of brushes, the renewal and repair of brushes and oil cans, damage to the machinery, and in many districts for the oiling of looms.

It is urged by the operatives that the deductions for brushes, either damaged or worn out, are frequently unjust, as the quality supplied is so poor that the articles can not last for the time expected by the employers.

They also state, with regard to deductions for oil cans that, as they are obliged to oil the machinery while it is in motion, it is impossible to avoid occasional accidents.

The most serious complaint has reference to the sums which a number of firms deduct weekly for the oiling of their looms. The general charge is one cent per loom, and out of the sum so collected a man is paid who does the work as often as necessary during the week. Except when the number of weavers employed is small, the levy is considerably in excess of the wages paid to the oiler, and, moreover, he is engaged upon other work for the firm during the greater part of his time. In the majority of cases the weavers also resent the charge as unjust in itself, and are of opinion that they might with equal right be charged for the oiling of the engine which runs the looms or for the wages of the tackler who attends to them. This system obtains principally in northeastern Lancashire. An attempt to introduce it in a Bury mill proved unsuccessful, and in other parts of the county it is scarcely known.

In Bradford (Yorkshire) a weekly deduction is made for the local infirmary. Under the head of deductions in Yorkshire mills may be classed the money fraudulently stopped from wages earned by means of a false length of warp or a false number of picks stated upon the weaver's card, the weavers being paid by the length of warp and number of picks. Miss Abraham says:

Probably owing to the better organization of the trade in Lancashire, I found fewer cases than in Yorkshire of false particulars being stated upon the weavers' cards, but those furnished are sometimes incomplete and are not supplied to each weaver, as required by section 24 of the factory act of 1891.

If the particulars are fully given, the weavers sometimes accept without protest a table hung up for general inspection, and do not demand that they shall be supplied to them individually.

The weavers working at mill No. 336 complain that, though the length stated upon the ticket and that for which they receive payment is 80 yards, the actual length is 86 yards. If the cut, when woven, falls below the latter length, they are fined for bringing out a short cut; in fact, they are paid for 80 yards and are expected to produce 86 yards.

DISPUTES.

Lancashire.—Miss Abraham reports the evidence bearing upon three disputes in Lancashire in which women were specially concerned:

In the first case the dispute arose in April, 1891, and ended in May in the same year. It turned upon the question of a fixed allowance of time for cleaning roving and slubbing frames. The firm had not observed the general custom of stopping the machinery at stated intervals, or at least for fixed periods, and the operatives were, in consequence, forced to clean their frames during meal hours, in contravention of the act. They asked that a time should be fixed for this purpose, and after some delay were informed that the machinery could be stopped, though it was not stated for what time. Immediately after this permission was granted a frame tenter was discharged for having spent one hour and a half cleaning her frame, the overlooker being of opinion that this was too long. Several other workers had been engaged at the same task for a similar time, and the operatives, considering the dismissal unjust, struck in support of their companion and were then locked out.

The frame tenter who was discharged has not been taken back, but is receiving support from the union till she finds other work.

The time allowed at another mill in the neighborhood for cleaning an exactly similar frame is two hours.

The second case was in Oldham, and was directed against an overlooker who had been charged with immorality. It was only after he had been found guilty in court of immoral offenses that he was dismissed by the firm.

The third strike about which I have received evidence was at Nelson. The strike took place in February and was concluded in March, 1892. It arose under similar circumstances to the last, but in this case the question of guilt was decided by three clergymen who were chosen as arbitrators, both sides agreeing to this mode of settlement. The arbitrators, after carefully weighing the evidence, found the overlooker guilty of "making immoral proposals to a married woman and of using indecent language to other females." They included the following recommendation in their award: "It was with the deepest regret we learned during the inquiry that the offenses of which we have been compelled to adjudge Houghton Greenwood guilty are not uncommon among men who have the oversight of the female operatives in other mills, and as ministers of religion we most earnestly appeal to the employers of labor to practically recognize their duty in this matter and to seriously consider how essential it is to the happiness and well-being of those under their charge, as well as to their credit, to make the moral conduct of their work people a subject of nearer concern and of greater importance."

The award from which I quote was printed and distributed among the weavers in Nelson, and is believed by them to have created a marked improvement, not only in the behavior of overlookers, but in the attitude of employers upon this question. Shortly after its publication a "cut looker" was discharged by another firm for making immoral proposals to a weaver who brought her piece to him for inspection.

I notice that fines are a constant cause of friction between operatives and employers, though in all cases into which I have inquired the difficulty has been settled at the instance of the local union without the occurrence of a strike.

Yorkshire.—Below I give Miss Abraham's report of her inquiry into disputes between employers and employed in Yorkshire:

The first case was at Bradford. The dispute originated among the overlookers, who struck against a new arrangement in the mill which involved more work without more pay. The weavers came out to support them and a lockout ensued. A number of weavers failed to be reinstated, and new overlookers were engaged. The strike and the lockout lasted a week.

At another Bradford mill the spinners threatened a dispute if their wages were not increased. Their demands were granted without a strike. Spinners earning $1.88 and $2.19 per week were raised to $2 and $2.31, respectively.

At another Bradford mill the weavers struck for an increased price on the piece, because of a greater difficulty experienced in weaving heavy yarn, which had been recently introduced. The women obtained the desired concessions after a few days' strike.

At some mills at Ravensthorpe 110 women weavers came out on strike against a proposed reduction as follows: Box looms, $3.16 piece, 30 cents reduction; plain looms, $3.04 piece, 42 cents reduction. The prices paid before the strike were 48 cents lower than the association scale, and the average wage of a box-loom weaver was $2.10 per week, while that of a plain-loom weaver was $2.02 per week. A small proportion of the women belonged to the Weavers' Association and were entitled to strike pay, but the majority were without means of support during the strike. By union intervention the proposed reduction was lessened by 18 cents in each case, and the weavers who were unable to hold out longer than a month accepted these terms and returned to work.

At a mill in Halifax men weavers were threatened with a reduction upon looms of a certain make, which would bring down their wages to those of men engaged upon lower-paid looms. This was resisted and was not insisted upon. The firm then proposed that the

weavers receiving the higher price should play while those working at the lower paid looms should go on with the work of the men at play. Upon this the men's union ordered that the higher price paid for this work should be demanded, and that the men should strike if this demand were not granted. The firm refused to grant it and gave the men a counter notice to leave. The work they had been doing, viz, the weaving of Brussels carpets, because of its heavy nature, had always been considered unfit for women, but it is now done by women and boys who have taken the place of the men on strike.

The price paid to the men was $8.51 per week; the women receive $4.86 per week.

ACCIDENTS.

Shuttle flying is in Lancashire, as in Yorkshire, the only form of accident from which women appreciably suffer. The high speed of the Lancashire looms and the difficulty experienced in weaving the heavily sized warps constitute the necessity for the more general adoption of some form of guards. In some districts guards are unknown, and in only a few mills are they attached to all the looms. In those mills where the guards are in general use their introduction was at first objected to by the operatives; but this is no longer the case, and the old prejudice is allowed to have been merely against a "new thing." On the contrary, a unanimous desire is expressed by weavers for guards, even though these should entail some extra trouble at first. Miss Abraham heard of eighteen recent shuttle accidents in Lancashire, and the house surgeon at the Royal Eye Infirmary, Manchester, informed her that while the total number of serious accidents treated at the infirmary during the whole of 1892 was nine, the same number had already been reached in the first five months of 1893.

In Yorkshire the only accidents peculiar to women's work in mills are caused by shuttle flying. Miss Abraham received evidence of eleven cases in which workers had recently lost an eye, some of which resulted in complete loss of sight. From Dr. Bell, surgeon to the Eye and Ear Hospital, Bradford, she received evidence of the death of one weaver occurring within twenty-four hours of a blow upon the head from a shuttle. The authorities of the Bradford Eye and Ear Hospital strongly recommend the use of shuttle guards.

EFFECT OF THE LABOR OF WOMEN UPON THEIR HEALTH.

Lancashire.—In Lancashire serious complaints were made to Miss Abraham by the operatives of injury to their health arising from badly constructed and neglected sanitary accommodation, from insufficient provision for comfortable meals, from bad ventilation, and from shuttle accidents. Added to these causes of ill health, the weavers complain of the injurious effects of excessive steaming and sizing, both of which are prevalent in the districts of Burnley, Blackburn, Darwen, Todmorden, Wigan, and Bury. The card-room operatives throughout Lancashire complain of the light, fibrous dust which is generated by the carding process. The ring and throstle spinners state that they suffer from the excessively high temperature of the spinning rooms, which in some mills reaches 100° F. The lady commissioner found the sanitary accommodation in Lancashire mills more universally bad than

in mills of a similar class in Yorkshire, and she attributes this to the greater heat used in the manufacture of cotton, which tends to increase the effluvia. In the majority of mills the lavatories are without ventilation and open directly out of the rooms. The tub or pail system is very general, and, in addition to its other disadvantages, is the method of removal. In Yorkshire the common practice is to take away the tubs from the outside, but in Lancashire they are carried through the rooms. This is done during working hours, about twice a week, and on each occasion the air of the room is vitiated. Miss Abraham says:

Another system which I have found objectionable is that known as the bog system. Pipes connected with the lavatories pass through every story of the mill and at the bottom end in a cesspool, described as a "bog." This cesspool remains untouched always for a considerable time, and sometimes for as long as twelve months.

Although oversteaming is provided against under the cotton cloth factories act, Miss Abraham visited a large number of sheds in which the dry heat was about 90° F. and the moist heat about 80° F. Frequently the steam jets are within a few inches of the weavers' heads, and where this is so they complain of severe headache. She says:

All the weavers I have seen complain of general prostration and of rheumatic pains; the former they attribute to the excessive heat of the shed and the latter to the sudden change from a hot atmosphere laden with moisture to the cold outer air in the winter or even in the summer months. Steam is most heavily used in winter, but some firms continue its use throughout the year. Much suffering is also caused by the condition of the floors, which, from condensed steam or from frequent sprinkling and flooding with water, are always damp. In one mill the weavers state that the water rises above the tops of their clogs. When the warps are heavily sized the steam or water mixes with the size dust and forms a slippery mixture upon which it is difficult to walk. In illustration of this danger, it was reported to me that a tackler had slipped while carrying a beam and died from the effects of the fall within two days. A weaver at another mill also fell, and, catching her arm in the wheel of the loom, was seriously injured.

It is urged by manufacturers in favor of the practice of heavy steaming that it is essential to the manufacture of cotton cloth under the present conditions of trade. The manager of a mill in Tyldesley expressed an opinion directly contrary to this, though he admitted having at one time held the general opinion. His experience extended over several years, and he had proved that a better quality of cloth could be made from the same quality of cotton, and at the same cost, if the "softening" is introduced into the size while the warp is "slashed," instead of being introduced by the aid of steam while it is woven. The looms under this new system produce the same amount per week as they did under the old.

This witness is strongly of opinion that the heavy steaming still in force is injurious to the health of the operatives.

The size which is used for cotton warps varies a great deal in composition. Chloride and sulphate of zinc, chloride of magnesium, and epsom salts are among the various salts used to lessen the glutinous qualities of two of the principal ingredients, namely, flour and tallow. These salts are also valuable for the purpose of retaining moisture, and they have the further property of preventing mildew, by which last quality they have probably earned the name of "antiseptics," which is commonly given to them by the operatives. Together with China clay, which is used to a considerable extent, they are condemned by the weavers as injurious to their health. I noticed several weavers whose lips were coated with white size dust, and the medical officers of the districts attribute to this injurious material the various forms of lung disease from which weavers suffer who are employed upon heavily sized warps.

Yorkshire.—In Yorkshire Miss Abraham found imperfect sanitary accommodation to be common to all mills. She says:

> The accommodation provided is seldom sufficient for the number of women employed; the closets are in a dirty and offensive condition, owing to an imperfect system of drainage, and frequently the only ventilation is from the workroom.

With regard to injurious effects upon the health of women resulting from the nature of their occupation, Miss Abraham says:

> All the women I have seen who work in the wool-combing sheds complain of the effects of the intense heat, one witness stating that she had been ill for seven weeks in consequence. The temperature is generally higher toward the end of the week, when it is believed by workers to rise above 100° F. Another complaint is that the heat increases the effluvia from the lavatories when these open directly from the shed.
>
> In the sorting and picking of rags for the manufacture of shoddy complaints are made of the injurious effects of the dust and smell arising from them. Large quantities of these rags are foreign and arrive in a filthy condition, having been packed closely together, sometimes for over twelve months.

As a matter affecting their health, many women complain of the absence of any provision by which they can get comfortable meals. The Lancashire operatives are in this respect better situated than those in Yorkshire. Hot water is very generally provided, but only in a small number of cases can food be cooked. In the majority of cases in Yorkshire the operatives are obliged to drink cold tea for breakfast, made overnight and brought to the mill in tin cans. As a rule, they can not warm their dinners. In some cases, on the contrary, it is possible to obtain hot water and make fresh tea and in a few cases to heat food. At Mr. Mark Holroyd's mill, in Dewsbury, hot water and milk are provided free of charge and attendants kept who make tea, coffee, or cocoa for the women. At Messrs. Crossley's carpet mill, Halifax, a restaurant and dining room are supplied, at which the workers obtain food at the usual prices, and, if they desire it, can have their own food heated for them.

EFFECT OF THE LABOR OF WOMEN UPON THEIR HOMES.

Yorkshire.—Great difference of opinion exists among workers concerning the advisability of restricting by law the employment of married women in mills, although all classes agree as to the undesirable effect of the absence of the mother upon the home. The prejudice against mill work for married women is strongest in the Huddersfield district, and some of the employers have rules under which it is prohibited or gradually discontinued. One employer takes no fresh workers known to him to be married, and those who marry while in his employment cease work at the end of six months. At another mill married women continue in employment until they leave for their confinement, but are not taken back afterwards, nor are fresh hands taken who are known to be married. At another mill no married women are taken on, and until recently those who married during their employment were discharged. The latter rule is now modified, and women who marry during their employment are allowed to remain until childbirth and do not

afterwards return. The more stringent rule was introduced by one of the founders of the firm, who had worked his way up from the rank of a workman and who believed that a "great deal of the unhappiness and drunkenness in working families arose from the wives being in the mills and from the consequent dirtiness and untidiness of their homes." Among the workers a number of married men who have realized the harmful effect upon their homes of the absence of their wives advocate strongly some form of restriction, and some married women hold the same view. The majority of unmarried women are decidedly opposed to the employment of married women in the mills. The large majority of married women at present working are opposed to any restriction. Many workers fear the immediate result of a complete withdrawal of married women from the mills and fear the effect upon homes practically maintained by the wife's labor, either where the husband is disabled from work or dead, or where he is unemployed and the withdrawal from the mill of his wife would not necessarily be followed by the substitution of himself. It is also urged that the restriction of married women's labor would give an advantage to unmarried women in wage-earning, and thus discourage marriage and encourage the evasion of the law by concealment of marriage.

Lancashire.—The above remarks on the effect of the labor of women upon their home life with regard to Yorkshire apply with about equal force to Lancashire. The wife of the cotton operative has, however, as a rule, less necessity to work than the wife of the woolen operative, and about half the number of married women working in the Lancashire mills are wives of colliers and other workmen.

EFFECT OF THE LABOR OF WOMEN UPON THEIR MORALITY.

Yorkshire.—Miss Abraham says:

I have made the most careful inquiry into the effect of mill life in Yorkshire upon the morality of women, girls, and children, and I find that in a number of mills the overlookers do use loose and violent language, which it is considered has a harmful effect, especially upon the children. There are undoubtedly some few cases of direct immorality in connection with a system of "favoritism," but a more general cause of immorality in girls and children is insufficient sanitary accommodation, the same closets being common in some mills to men, women, and children. A great deal of importance is attached to the evil effects of this system upon the morals of the work people by persons in the district, and from incidents which came under my own observation I can fully indorse their opinion.

Beyond this there is no special tendency to immorality among mill workers. Much of the good conduct of a mill depends upon the individual character of the overlookers; and, in those mills where care is taken by the masters, the morality is necessarily better than in the mills where the masters set a low tone.

The immorality of children is attributed, and probably correctly so, to the fact that the inadequate sanitary accommodation I have mentioned as being so injurious is most general in spinning rooms, and this is just the part of the mill where children are largely employed. In considering this part of the subject, I have had in mind the regulations which have long been thought necessary in well-ordered elementary schools; and I think if the same standard of sanitation and decency were enforced in mills a very valuable improvement would result in the moral condition of the persons employed.

Lancashire.—Though the conditions of mill life in Lancashire are closely similar to those in Yorkshire, Miss Abraham found in the first-named county a large number of cases of actual immorality and of immoral tendencies. She sees no explanation for this except in the fact that the sanitary accommodation is much more frequently common to men and women in Lancashire than it is in Yorkshire. Two cases of immorality have been directly traced to this, and it is mentioned as the cause of much loose language and immoral behavior. Moreover, common provisions for decency are in some mills absent, the lavatories, which open from the shed in which men and women work together, being unprovided with doors. In several cases also the sanitary accommodation for the women is situated in the tape room or in other rooms in which men only are employed.

WILLIAM F. GRINNELL,
Consul.

MANCHESTER, *February 5, 1894.*

ANTWERP INTERNATIONAL EXPOSITION.

On May 5, 1894, will be opened in the city of Antwerp the "Antwerp International Exposition." It will continue for a period of six months.

For the success of such an enterprise the city of Antwerp possesses a fortunate geographical situation and offers excellent inducements in the matter of transportation facilities, both as regards passengers and freight. Antwerp is a city of 275,000 inhabitants situated on the right bank of the River Scheldt, about 50 miles from the sea. It is one of the termini of many lines of ships going to all quarters of the earth, and its commercial importance is of the first rank.

The width and depth of the River Scheldt afford accommodations to the largest steamers, and the well-constructed and extensive system of docks gives ample place to any quantity or quality of freight.

Antwerp is the natural distributing point for Holland, Belgium, northern France, and northwestern Germany, while for the more interior and eastern parts of Europe it easily competes with the other great commercial ports of Hamburg, Bremen, Rotterdam, and Havre.

So much, in a few words, for the geographical and commercial importance of the city.

THE EXPOSITION.

The grounds cover an area of 120 acres, upon which stand, almost finished, the large, well-arranged, and substantial buildings. The site is near the center of the city and easily accessible by street cars and carriages. It is also very near the docks, which makes the landing and placing of exhibits a matter of very little trouble and expense.

The promoters of the enterprise are leading men of Antwerp, and they are sanguine of complete success. They say that the prospects are far brighter

than they were for the Antwerp Exposition of 1885, which itself proved very successful financially and otherwise.

Space has already been engaged by more than six hundred German exhibitors. Exhibitors from France have taken their space together, as also have those from England. England has, in addition, named as special commissioner its consul-general at this place. Canada has secured special space, while the Russian, Roumanian, and Bulgarian exhibits come with the official aid and recognition of their governments.

THE UNITED STATES.

Special efforts have been put forth to secure a large patronage from the United States. Early in last summer the exposition company sent over as its special representative Mr. Stanislaus H. Haine, the vice-president of the company, one of the most prominent men of Antwerp and deputy consul of the United States at this place. Mr. Haine proceeded to the Chicago Exposition, where, by his courteous manner and vigorous work, he succeeded in making contracts with many of the Chicago exhibitors. He formed the "American Propaganda," the object of which organization is to place, look after, and protect American exhibits, and, if possible, to construct an American building solely for American exhibitors. It now appears that the construction of this building is a certainty.

The office of the "American Propaganda" is No. 741 Monadnock Building, Chicago, and its president is the Hon. Thomas B. Bryan.

The joint efforts of this society and Mr. Haine have already resulted in assigning space to more than eight hundred American exhibitors, more than twice the number at the great Paris Exposition of 1889. Mr. Haine has also been successful in securing a reduction of freight rates from the Red Star line, which runs a weekly service between Antwerp and New York and a biweekly service between Antwerp and Philadelphia.

Among the many directions in which our exports may be increased by appropriate efforts at this Exposition, two especially suggest themselves to my mind.

Wood and iron working machinery.—Southeastern Belgium—that part in which are situated the cities of Liege, Namur, Verviers, and Charleroi, is full of car works and arms factories. Belgium, it is true, is a small country, but it is the most densely populated of all the countries and is a network of railroads. All the cars and other road equipments are made in these factories. The manufacture of firearms is also an immense industry. Strange as it may appear, $1,000,000 worth of Belgian firearms were shipped to the United States from the consulate of Liege during the fiscal year ending June 30, 1892. And at this very time these factories are fulfilling a contract with Russia to transform its guns into a more modern type. With so much work in wood, iron, and steel, it would appear that proper effort on the part of our manufacturers would result in placing much of our excellent machinery.

Furniture.—The chief thing in Europe which I have found more expensive than in America is furniture. Chairs, tables, bedroom sets, desks, and all kinds of furniture are much more expensive than at home, owing to the scarcity of wood and its consequent higher price. I believe strongly that the great furniture manufacturers of Michigan, Indiana, Georgia, and other places would find it highly profitable to make a thorough exhibit at the coming exposition and begin the sale of their goods in this country. Distribution can be made from here with as much facility and as little expense as from any other European port.

CONCLUSION.

I have not, in this brief report, gone into detail, because to many people the subject is without interest. But to those who desire to make further investigation, I wish to say that my services are at their command. Valuable information may also be obtained by addressing the "American Propaganda," at Chicago, or Stanislaus H. Haine, esq., at Antwerp.

HARVEY JOHNSON,
Consul.

ANTWERP, *January 13, 1894.*

ELECTRICITY APPLIED TO ST. ETIENNE INDUSTRIES.

St. Etienne may well be called a workingman's town. Fully three-fourths of its 133,000 inhabitants derive their support from the mine, the gun factory, the foundry, and the loom. Of this large body of wage-earners by far the most intelligent are the weavers, numbering about 30,000. Frugal, industrious, and law-abiding, they afford an interesting example to the student of the labor problem of the effect of "home work" upon the relations of capital and labor.

Of the 18,000 looms in St. Etienne, the greater number are owned by the individual weavers and worked by hand in their own homes. While it is apparent that the recent inventions for the transmission of power by electricity will shortly effect an alteration in the methods, it is not thought that it will change, to any great extent at least, the location of the work.

Until very recently the ribbon-weaver, laboring in his own home, could see no room for improvement in the mechanical execution of his work. From time immemorial the long bar had been worked by hand. Brought up to it from childhood, and inheriting the prejudices of his class, it was difficult to convince this member of an ancient guild that any advantage could be gained by the substitution of any other power for that of his own sinewy arm. Of late, however, his eyes have been open to the wonders of that subtle agent which is so rapidly transforming the mechanical work of the world, and to-day it is not a rare occurrence to find a humble weaver

who can talk to you of dynamos and motors with the intelligence of a practical electrician. Already over sixty looms are being worked by electricity, the force being furnished by the Edison Electric Company. This company has for several years supplied the light to a large number of shops, hotels, and saloons in the city, but more recently, with commendable enterprise, it has undertaken to furnish electric force to the numerous looms in the district. To this end it has established an elaborate electric plant on the River Loire, at the foot of a picturesque village, St. Victor-sur-Loire, situated about 8 miles from St. Etienne. A waterfall of 900-horse power sets in motion three turbines which transmit the electric force through four cables, 7 millimeters in thickness, to its destination. As has been stated, over sixty looms are now in operation worked by electricity furnished by this company, and the director informs me that he anticipates a great increase in the number during the next six months.

Just now the ribbon business is extremely dull, but it is confidently expected that with the revival of trade every loom-owner will wish to take advantage of this mechanical force. The actual expense under this system is 350 francs per loom, including dynamo, pulleys, belts, etc., all of which become the property of the weaver. An additional sum of 10 francs per month is charged for each loom. If the loom remains idle for more than a fortnight in any one month, a proportionate deduction is made by the company. A weaver who is the owner of two looms driven by electricity recently told me that by this agency he can turn out 25 per cent more work than formerly.

The large ribbon factories of St. Etienne are, as a rule, worked by steam power. There is one factory, however—that of Messrs. Forest & Co.—which is worked entirely by electricity. In this factory, which is of recent construction, there are one hundred looms for the manufacture of the various styles of ribbons—silk, velvet, fancy ribbons, etc.—and a number of others for the making of plush. All these looms are worked by electricity, furnished by two powerful dynamos situated on the ground floor, and put in motion by a large steam engine. Each loom has its own accumulator, regulating the velocity according to the article manufactured, and when it is stopped the current is turned off, so that no waste of electric power is allowed. This saving of expense can be readily appreciated, as it is well known that the weaver, for one reason or another, has to stop his loom very frequently during the day.

This firm owns another factory in the country about 50 miles from St. Etienne, which is run on the same electric system, with this difference—the electric power is conveyed to the factory, a distance of 8 miles, by means of overhead cables. The generators are worked by water.

So far Messrs. Forest & Co. seem to be abundantly satisfied with their experiment. They claim that the advantages of the improvement are manifest, that the movement produced by electricity is more uniform and gentle than that obtained by steam, and that, while the cost of construction is not

greater, there is more economy in the working and maintenance of electric machinery than under any other system.

In the neighborhood of Grenoble, in the department of the Isère (until recently a part of this consular district), the application of electricity has had a marked effect upon its various industries. Electric bleaching of paper pulp is extensively resorted to in its paper mills. Near Grenoble, at a place called Lancey, there is a paper factory worked entirely by electricity. The current, feeding a motor of 200-horse power, is transmitted from a dynamo located 5 miles up the river. The largest aluminium manufactory in France, producing 200 kilograms a day, is also located near Grenoble. The Société electrometallurgique Française have in course of construction at La Praz, in the adjoining department of the Savoie, a factory which will produce 1,000 kilograms a day, and it is believed that its capacity will be increased to 10,000 kilograms.

A copper-refining manufactory, that of M. Grammont, has been in operation for some years in the department of the Isère; these works turn out 1,500 kilograms of wire daily.

CHARLES W. WHILEY, JR.,
Consul.

ST. ETIENNE, *February 1, 1894.*

EGYPT'S CIGARETTE INDUSTRY.

The "Egyptian cigarette" is, strictly speaking, a misnomer, for the cultivation of the tobacco plant has been forbidden by decree since 1890; hence "cigarettes made in Egypt" would be a more truthful description.

The manufacture is an important one, however, and is doing something toward materially increasing the revenue of the country. Nearly all the tobacco comes from Turkey, where it is shipped chiefly from Cavallo, Latakia, and Yenidje. The paper comes from Austria, Germany, and Italy, and the major part of the labor employed is Greek, except for common brands, which are made by the natives. The manufacture for export is very largely in the hands of Greeks, and so deeply founded is the belief that Europe and America will buy only Egyptian cigarettes made by a Greek firm that several manufactories are carried on under trade names invented or borrowed in pursuance of this strange belief.

The total export of cigarettes in 1893 was about 140,000,000 in number, valued at something over $1,165,000. The bulk of the trade is centered in Cairo, where there are no less than eighty-three manufacturers for export, who employ 1,300 workmen. Taking into account the families of these people, it may be estimated that at the very least 5,000 inhabitants of the Egyptian capital are dependent for their daily bread on this industry.

The Egyptian cigarette has such an established position among the luxuries of the world that it is difficult to believe that this flourishing trade is of

very recent growth, but it is, in fact, one of the many indirect advantages accruing to the country from the impetus imparted by the invasion of foreign enterprise. The constant flow of tourists has been an important means of disseminating the taste for the Egyptian cigarette, acquired in the land of the Nile, and its delicate aroma is familiar in consequence not only in America and England, but in far corners of the earth.

The Cairo-manufactured cigarette is valued above all others made in Egypt. The same tobacco may be used and as skillful workmen employed in other places, but nowhere else is the same delicacy of flavor achieved. It is claimed by experts that the cause of the superiority of the Cairo cigarette is the very dry climate, which is better adapted to their manufacture than is the humid air of seaport towns. Notwithstanding Cairo's claim to climatic advantages, Alexandria has a considerable cigarette trade, and Port Said drives a profitable business with the never-ceasing procession of vessels passing through the Suez Canal.

The tobacco used is not adulterated in any way, it is claimed, but is skillfully "blended" to acquire the desired strength and flavor. The best leaves are selected for use in export, common grades being consumed in Egypt, where nearly every man, woman, and child is a smoker of cigarettes, and a pipe is hardly ever seen in the mouth of a native. The custom-house returns show that of the tobacco entering the country only about one-third is exported, thus developing the fact of an enormous home consumption, and giving a suggestion of the quantity leaving the country in the baggage of travelers, though a probable shrinkage occurs in the process of manufacture. Machinery is not employed in any way except for cutting the tobacco, and it is said that the workmen wield sufficient power to render the adoption of machinery for rolling a step too dangerous to be contemplated. Adept workmen are paid from $1.25 to $1.50 per thousand for rolling.

All tobacco entering Egypt pays a duty of $1 per kilogram (about 2¼ pounds) and a drawback of 50 cents per kilogram is allowed on cigarettes sent out of the country by manufacturers who have deposited with the Government the sum of $500, which amount is forfeited if the exporter is detected in an attempt to defraud the treasury. A good quality of cigarette tobacco costs about $10 per kilogram.

England is the largest customer for Egyptian cigarettes, with Germany next. It is impossible to ascertain the amount of business with the United States, as there is no direct shipping communication. Many orders are executed through London commission houses, and the cigarettes are invoiced in the first instance to Great Britain. Wholesale prices range from $5 to $10 per thousand, while a few fancy brands bring as much as $18 per thousand.

To protect the public and the maker against spurious imitations of Egyptian cigarettes manufactured in Europe, the Khedivial Government is about to issue an official label which will be affixed to each box of cigarettes made in and exported from the country. But the future of the Egyptian trade is

much more in the hands of the makers than they seem to realize. Superiority of blend, make, and quality of paper are the characteristics which have been the foundation of their fame. If the Egyptian cigarette continues to be characterized in this way the trade has little to fear from outside competitors who make their wares attractive by questionable methods. Not a few unscrupulous firms, however, under the shelter of a reputation gained by the excellence of their goods, are not hesitating to debase the quality when they think their particular brand is sufficiently established. The only claim of the Egyptian cigarette to preference is its excellence, for its price, compared with high-class American cigarettes, is very high.

Another menace to the prosperity of the industry is the recent establishment at Constantinople of an export branch of the Government *regie*, which can send forth cigarettes made from the same tobacco and free of duty. Leaders of the trade in Egypt are making strong representations to their Government on the subject of this new danger to their prosperity, and ask an increase of drawback to the sum paid when the tobacco enters Egypt. Thus far no intimation has been vouchsafed that their request will be granted.

FREDERIC C. PENFIELD,
Agent and Consul-General.

CAIRO, *February 5, 1894.*

NEW CATTLE WHARVES AT GLASGOW.

On the 22d day of January, 1894, there was completed and formally opened for use a new addition to the foreign-animals wharves at Pointhouse-on-the-Clyde at this port.

In 1873 the first attempt was made to import live cattle from America into Glasgow. The first importation was two animals in one week, followed by six in one week, then twelve, the next thirty, and, finally, fifty in one week. The cost of transportation at that time was £10 ($48.66) per animal, and the shipper had to fit up his own stalls upon the vessel. The expense was too great, and in 1874 the trade stopped. In 1875 it was revived again and has flourished ever since, and is now on an assured footing and certain to increase.

The freight now is £2 ($9.73) per animal, and the shipowners fit up the stalls.

I am indebted to J. F. Ryder, veterinary inspector at Liverpool, who was present at the formal exercises of the opening of the new wharf here, for the following table showing the importation into Glasgow of live cattle from the United States for the year 1893, and the loss upon each vessel in said importation.

Cattle imported into Glasgow from the United States in 1893.

Vessel.	Number shipped.	Voyages.	Lost at sea.
Allan line.			
Siberian	2,079	6	6
Hibernian	872	3	.....
Austrian	795	3	3
Pomeranian	576	2	1
Nestorian	2,136	7	4
Peruvian	2,606	10	3
Corean	2,225	8	70
Norwegian	2,550	8	3
Sarmatian	672	2	1
Manitoban	223	1	.....
Prussian	2,086	6	5
Buenos Ayrean	300	1	.....
Grecian	1,750	6	1
Assyrian	1,754	6	1
Scandinavian	2,016	5	3
Carthaginian	1,158	4	2
Total	23,798	78	103
Donaldson line.			
Alcides	193	1	.....
Indrani	866	4	.....
Amarynthia	583	2	.....
Total	1,642	7	.....
Anchor line.			
Australia	400	1	2
Scotia	135	1	.....
Total	535	2	2
Tramp steamers.			
Prodano	700	4	1
Nerano	849	5	2
Nerito	858	5	1
Holyrood	171	1	.....
Total	2,578	15	4

RECAPITULATION.

Line.	Number shipped.	Voyages.	Lost at sea.
Allan	23,798	78	103
Donaldson	1,642	7	.....
Anchor	535	2	2
Tramp steamers	2,578	15	4
Total	28,553	102	109

It will be seen that the loss was less than one-half of one per cent on the whole number shipped, and averaged only a little over one animal per voyage.

No cattle are landed at this wharf but those from the United States. The Canadian cattle are landed at another wharf on the south side of the river.

The new extension gives room for the reception of 2,900 additional animals, and, with the buildings already in use, which will be retained,

there will hereafter be a lairage for 3,800 cattle, with premises in connection where 1,000 animals can be slaughtered per day.

The new buildings are modeled somewhat after those at Birkenhead, Liverpool. They are of brick, about 800 feet long and about 180 feet wide. In point of size and equipment they are not surpassed in the United Kingdom. Half of the range of the buildings is three stories.

The cattle, when landed, are stalled on the second and third floors, being inspected at the landing place. From the stalls they pass through the sale room to the place of killing. The sale room is in the third story.

The killing rooms, twenty-nine in number, are on the first floor.

Along the ground floor, in the center of the building, a line of rails has been laid, intending in the near future to make connections with the railway systems at Stobeross depot.

The cost of the buildings (new) has been about £50,000.

Gangways at a convenient slope provide communication between the different stories, and actual experiments on the day of the formal opening showed everything to be in fine working order, both as to the convenience and dispatch of business.

The upper floors of the building are of concrete, and the structure is supported by wrought-iron beams. The adjoining slaughterhouses, blood rooms, and tallow-searching rooms, with the separate accommodation for the cattle dealers, are also strongly constructed of brickwork, but restricted to one story in height.

This addition to the capacity for receiving foreign cattle at this port must be of great benefit to the United States, and I confidently look for an increased trade in the export of American cattle to the Clyde. At least I deem the matter of sufficient interest to our people at home to warrant this report.

ALLEN B. MORSE,
Consul.

GLASGOW, *January 5, 1894.*

AUSTRALIAN FROZEN BEEF IN AUSTRIA.

The first shipment of Australian frozen beef ever received in the Vienna market arrived a few days ago in good condition. It consisted of 5,000 kilograms,* and found ready sale in competition with native meat.

Beef in Austria is sold in different qualities. The first quality brings from 66 to 68 kreutzers† per kilogram; second quality brings from 56 to 60 kreutzers per kilogram; lower qualities, as low as 40 kreutzers per kilogram.

The shipment alluded to was sold as meat of the second quality and brought 62 kreutzers per kilogram when sold with the fat, or 58 kreutzers without the fat.

*100 kilograms=220 pounds. †100 kreutzers=1 florin=39½ cents.

Inasmuch as some purchasers, after cooking the beef, complained that its frozen state had robbed it of the fine flavor that fresh meat has, and inasmuch as it is difficult to preserve, it is doubtful if the price of Australian beef will sustain itself; but still another shipment of 5,000 kilograms is under way.

This shipment took somewhat over one month to reach its destination. It was shipped via London, where it was repacked, and sent in bagging by water to Hamburg and thence by rail to Vienna.

I could not find out here the cost of shipment from Australia to London; but from London here it was 4.46 florins per 100 kilograms. The duty here was 7.25 florins per 100 kilograms, and the tax for eatables 3.25 florins per 100 kilograms. These items and 3 per cent commission constituted the total expense.

If Australian meat can be sold here at a profit, why should not Americans be still more able to open here a market for their product?

MAX JUDD,
Consul-General.

VIENNA, *January 20, 1894.*

A NEW FUEL.

The following is Maestracci's method of manufacturing petroleum bricks for fuel:

Mix one liter of petroleum, 150 grams triturated soap, 10 per cent of resin, and 333 grams of caustic soda. Heat this mixture, being careful to stir it well meantime, until solidification commences—say about forty minutes. If the mixture should tend to boil over, pour in a few more drops of the soda, and continue to stir until solidification has sufficiently progressed, then pour the semifluid material into molds to form the bricks, and place these in a hot room or drying place for ten or fifteen minutes; then remove them and let them cool. In a few hours they can be used as fuel.

To the three elements which constitute the mixture Mr. Maestracci recommends the addition of 20 per cent of sawdust and 20 per cent of clay or sand, which makes the bricks more solid and less expensive. Trials of these bricks as fuel have been made at Marseilles on several tugs, and it has been found that, weight for weight, they develop three times as much heat as the ordinary coal brick, and leave no ashes.

It is expected, with some slight changes in the furnaces, to arrive at still more perfect results, not only in the increased heat, but in the entire suppression of smoke, and on the most economical basis, one kilogram of the solidified material being equal to 4 kilograms of coal. These experiments seem to be very interesting, and it is quite easy to understand that there is a double advantage in using such fuel on steamers, as they economize in both space and cost.

C. W. CHANCELLOR,
Consul.

HAVRE, *February 10, 1894.*

GREEK FINANCES AND COMMERCE.

For the past two years the state of the finances of the Kingdom has been the subject of interest and discussion by the Government, the press, and the people of the country. On this subject cabinets have been overthrown and their places taken by others, who thought they could grapple successfully with the matter, but who again in their turn either lost the confidence of the deputies, or were obliged to resign without being able to settle the finances on anything like a stable basis. At the present moment the country is in a state of actual bankruptcy.

The beginning of the year 1893 found the Tricoupis administration in power. Mr. Tricoupis had for some time in the year 1892 been working hard on the finance question, and, at his request, as is generally believed, an officer of the British foreign office was sent to Athens to examine into and report to his Government on the economical and financial condition of Greece. This officer—Mr. E. F. G. Law—submitted his report on March 10, 1893. The report was printed and presented to both houses of Parliament. It gives a clear statement of the position up to the time it was made, with tables of the nation's indebtedness, revenues, and taxes, and comparative tables of various kinds, all received from official and authentic sources, not available to ordinary consular officers.

On the basis of this report Mr. Tricoupis's government entered into negotiations for a loan in England, and in the spring of the year 1893 Mr. Theotokis, Minister of the Interior, went to London to effect negotiations, but before anything was completed the Tricoupis cabinet on the 9th of May suddenly resigned, and Mr. Sotiropolous was intrusted with the formation of a cabinet. On the new Government coming into power it found that financial matters were pressing, that payments of coupons and sinking fund on the national debt were nearly due, that there was not sufficient money in the treasury to meet them, and that a loan in coin was then impossible. It therefore, by royal decree, contracted a funding loan for 100,000,000 francs, a sum sufficient to pay the interest and sinking fund on the debt for two years and a half.

In payment of the interest and sinking fund of this loan, certain revenues collectible in gold were hypothecated, amounting to about 8,000,000 francs per year. When the Chamber met, however, on November 8, the Sotiropolous cabinet found itself in a minority and resigned. The formation of a cabinet was then intrusted to Mr. Tricoupis, the present head of the Government, one of whose first acts after coming into power was the canceling, by ministerial circular, of the fundamental terms on which the funding loan was made by his predecessors, thereby abrogating their act. Having thus canceled the funding loan without having anything to substitute therefor, and the December coupons on the debt falling due, the Government had no

other expedient except to inform the bondholders that it had no money to meet its obligations. This was done by the introduction of a measure in the Chamber on the 14th of December entitled "a bill for regulating the service of the national loans." This bill has since passed and received the royal signature. By its provisions the holders of the foreign gold debt are to receive provisionally 30 per cent of the face value of their coupons, the sinking fund to be in abeyance, and all guaranties granted when loans were made to be withdrawn. This arrangement is to remain in force until a final settlement is concluded between the Hellenic Government and the bondholders of its foreign debt.

The holders of the internal debt will receive payment in full, these bonds being all in currency.

The unsettled state of the nation's finances during the past year has had a most depressing effect upon this country's stocks and shares of all kinds, as is evident from the following figures:

Description.	Date.	Price.
Greek bonds in London	April, 1893	75
Do	Dec., 1893	89½
National Bank of Greece shares	June 30, 1892	37.50
Do	Dec. 30, 1893	23.30
Epiro-Thessalian Bank shares	June 30, 1892	285
Do	Dec. 30, 1893	239
Bank de Crédit Géneral de Grèce shares	June 30, 1892	130
Do	Dec. 30, 1893	8
Pan-Hellenic Steam Navigation Company shares	June 30, 1892	220
Do	Dec. 30, 1893	150
Athens and Piræus Railroad Company shares	June 30, 1892	445
Do	Dec. 30, 1893	330
Pirée-Peloponèse Railroad shares	June 30, 1892	143
Do	Dec. 30, 1893	63
Laurium Metal Mining Company shares	June 30, 1892	143
Do	Dec. 30, 1893	58

The above figures are taken from the stock and share market published lists.

Besides these losses, there are other fluctuations of greater importance to commerce—the chief of which is the depreciation of the currency and the sudden fluctuations in the rate of exchange, fluctuations in exchange having been as much as 15 points in a single day, so it is easily understood that trade, if carried on at all, simply becomes bourse speculation. In fact, business of all kinds has been very much hampered during the year just ended, and doubtless will show a very decided decrease in volume as compared with the amount done in 1892.

The bad condition of the country will also be apparent from the reduced receipts from customs duties, although the rates of duties have been increased 37 per cent during the past two years, 17 per cent of said increase having been added during 1893. According to the budget recently submitted to the Chamber of Deputies by the Minister of Finance, the decrease

of income from this source amounts to 7,500,000 drachmas*—less than the receipts of 1892. The Minister estimated that the reduction of income from customs duties in 1894 would amount to 11,500,000 drachmas. The average of yearly imports into Greece amounts to about 120,000,000 drachmas. This year the above sum will be reduced about 48,000,000 drachmas for revenue purposes.

The depreciation in the value of property of all kinds is very considerable, owing chiefly to the depreciation of the currency. Wages being paid in currency, the working classes have suffered.

Commerce has been hindered the past year to a certain extent by Greek quarantine on account of the prevalence of cholera in Turkey and various other parts of Europe.

The currant, grain, silk, and olive oil crops were excellent in 1893, but unfortunately, owing to the low prices obtainable for the first mentioned of these, no advantage has been gained thereby. Owing to the restrictions placed on the importation of currants into France, a large part of the crop remains in the country unsold, while that sold brought only about one-half the price of former years. This is a serious matter for the finances of the country, as this fruit constitutes by far the largest export of the Kingdom. The excellent grain, oil, and silk crops make up, to a certain extent, for the loss from the nonsale and low price of currants, but the compensation from this source is not considerable. The failure to sell the currants this year may have an ultimate beneficial effect, as the Greek people are turning their minds toward using the surplus in the manufacture of cognac, and already a number of small distilleries are doing a good business in this article, exporting it to Turkey, Egypt, and other countries, handsome profits being realized thereon. To use up the whole surplus of last year's currant crop in this business requires, however, capital greater than can be found in Greece to-day. Perhaps American capital might here find a field for profitable investment. The currants could even be shipped to the United States and be there made into wine or brandy.

The causes leading up to the present deplorable condition of this country are not far to seek—overborrowing on the one hand and lavish expenditure on the other. Perhaps the present Government may find some means of placing the nation's finances on a sounder basis. The speedy return to a gold currency is necessary to insure financial stability.

GEORGE HORTON,
Consul.

ATHENS, *January 17, 1894.*

*1 drachma=19.3 cents.

THE MINES OF BENI-SAF, ALGERIA.*

The mines of Beni-saf formerly consisted of only a few mineral beds, but now the Compagnie des minerais de fer magnétique de Mokta-el-Hadid (head office, 26 Avenue de l'Opera, Paris), has bought up all the beds of iron ore, Boukourdan excepted, of the Ouelhassas Cheragas ore district, formerly a part of the military territory of Tlemcen, of which Beni-saf is at present the political center.

QUALITY AND PERCENTAGE OF ORE.

The iron regions of the Ouelhassas have been admirably studied by the celebrated geologist, Mr. Pouyanne, chief mining engineer at Algiers. (See his report in the "Annales des Mines," volume IX, 1876.)

The ore consists of peroxide of iron. There are several species, but they are mostly of red hematites, containing more or less manganese, to which they owe their brownish-red and sometimes black color, closely associated with compact and hard limestone of the secondary period. Its hardness is variable—generally great at the surface of the beds; it often diminishes below and becomes powdery.

The richness of the beds greatly varies and all the degrees of mineralization are to be found, from the purest ore containing 61 per cent of pure metal to the limestone containing hardly any.

Very important beds, averaging from 55 to 60 per cent of pure iron, enable the Mokta-el-Hadid Company to sell their "Tafna ore" at a warranted percentage of 55.

IMPORTANCE OF THE IRON-ORE BEDS.

The iron region of the Ouelhassas consists of thirty-one recognized beds of iron ore, forming nine distinct groups; but from a topographical point of view these may be reduced to four, viz: (1) That of Beni-saf, including the beds of Dar-Rih and of Rar-el-Baroud (powder grotto); (2) that of Teni-Krent; (3) that of Djebel-Haouaria (formerly the property of the English company of Camerata); and (4) that of Sidi-Safi.

In the year 1874 work was begun on several beds and proved more or less successful. At present but one is being worked—that of Rar-el-Baroud—and the results are quite satisfactory.

No accurate estimate of the quantity of ore likely to be profitably extracted from these mines can at present be stated, for the company has undertaken but few new soundings, and the valuation given by Mr. Pouyanne in his report of 1876 remains unchanged. An idea of the importance of the beds can, however, be formed by considering the fact that since the year 1874 over 4,000,000 tons of ore have been shipped from the port of

*The consul acknowledges his indebtedness to Mr. E. L. G. Milsom, consular agent at Beni-saf, for the particulars contained in this report.

Beni-saf to various parts of the world and that the layers are far from being exhausted.

MEANS OF EXTRACTION.

The ore at Beni-saf is worked in open layers, the underground works being only meant to meet prospecting purposes and to facilitate the means of conveying the ore from the place of extraction to the port. The ore reaches the harbor in trucks by means of a railway on an ordinary grade, both horse and steam power being used, and by gradients upon which the force of gravity is utilized.

There is but one loading berth. The ore reaches it by means of the railway trucks directly from the mines. The facilities of lading are such that cargoes of over 2,000 tons are easily shipped in twenty-four working hours.

PORT OF BENI-SAF.

The port of Beni-saf is a private one. It was conceded by the French Government for a term of ninety-nine years to the Mokta-el-Hadid company, who built it under their own engineers' control, and with their own means, without any Government aid. It includes two artificial piers forming a harbor of an area of about 18 hectares (45 acres). The western pier, after running in a northerly direction for 500 meters (550 yards), turns to the east-northeast and extends some 600 meters (660 yards) in that direction, protecting the harbor from all winds from west to northeast. The pier which shelters the harbor from the east is 300 meters long.

The western pier is reserved for the company's exclusive use; the other is open to general shipping.

The entrance of the harbor faces east and is 200 meters (220 yards) wide. It is incompletely sheltered from the east and northeast winds by the coast.

The minimum depth of water in the port is seven meters (about 23 feet).

The company's workshops afford every facility for repairs of all sorts.

In addition to Government port dues, a tax of 2 francs (38.6 cents) per ton is levied on all goods laden or unladen and not being on the company's account.

POPULATION, LABOR, AND WAGES.

According to the last census, the population of Beni-saf is about 4,000—almost entirely connected with the mines.

The labor employed is French headmen, Spanish miners, and special workmen and natives from Morocco. Wages vary greatly, the work being mostly done by contract. The following figures will, however, convey a pretty fair idea of the salaries paid each class of workmen:

		Francs.
Overseers	per month	150.00 to 250.00
Miners	per diem	4.00 to 5.00
Native workmen	do	2.50 to 3.50
Mechanics, fitters, carpenters, joiners, masons, etc	do	4.00 to 7.00
Shipping hands	do	3.00 to 3.50

TRADE AND SHIPPING.

The import trade of Beni-saf is so small that it is not to be taken into consideration, and the exports consist solely of iron ore. The annexed tables show a return of the shipping of the port for the years 1892 and 1893 and a return of exports, showing the quantity and value of ore exported, as well as the countries of destination. The average price of the ore has been during those two years 10 francs ($1.93) per ton of 1,000 kilograms.

Return of shipping of the port of Beni-saf for the years 1892 and 1893.

ENTERED.

Flag.	1893.						1892.					
	Sailing.		Steam.		Total.		Sailing.		Steam.		Total.	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
French	28	670	68	18,259	96	18,929	19	475	60	12,385	79	12,860
British	.....	.....	81	92,389	81	92,389	.....	.....	116	134,876	116	134,876
Belgian	.....	.....	1	726	1	726	.....	.....	3	3,988	3	3,988
Other	5	53	.....	.....	5	53	2	456	.....	.....	2	456
Total	33	723	150	111,374	183	112,097	21	931	179	151,249	200	152,180

CLEARED.

French	28	670	68	18,259	96	18,929	18	469	60	12,385	78	12,854
British	.....	.....	81	92,389	81	92,389	.....	.....	116	134,876	116	134,876
Belgium	.....	.....	1	726	1	726	.....	.....	3	3,988	3	3,988
Other	5	53	.....	.....	5	53	2	456	.....	.....	2	456
Total	33	723	150	111,374	183	112,097	20	925	179	151,249	199	152,174

Exports of iron ore from the port of Beni-saf during the years 1892 and 1893.

Countries.	1892.		1893.	
	Quantity.	Value.	Quantity.	Value.
	*Tons.**		*Tons.**	
France	8,267	$15,955	16,322	$32,502
Belgium	13,949	26,921	505	976
Netherlands	95,318	183,963	60,858	117,456
England	134,427	259,444	123,276	237,922
United States	39,586	76,401	2,377	4,587
Total	291,547	562,684	203,338	392,442

* Of 1,000 kilograms.

CHAS. T. GRELLET,
Consul.

ALGIERS, *January 23, 1894.*

MOZAMBIQUE IN 1893.

THE PORT OF MOZAMBIQUE.

The past year has been one of fluctuations, but there has been genuine progress nevertheless. In the port of Mozambique there has been no real improvement in trade. The heavy duties that came into force in the early part of the year tended to decrease the imports of cotton goods, the staple article of import, and to largely increase the selling price of nearly every imported article. The cost of living has increased in consequence, and much dissatisfaction with the existing order of things is found in many quarters.

EXPORTS.

The export of groundnuts from this port has been large, and many steamers and sailing vessels have left for European ports with full cargoes. The groundnut trade has not been a profitable one this year. High prices were paid in the early part of the season by some exporters desiring to make early shipments, and these prices materially affected the market during the later months of the season. At present groundnuts can be purchased in Hamburg or Rotterdam at from 15 to 20 per cent less than was paid for the same product here four or five months ago.

Smaller quantities of sesame seeds, hard woods, rubber, wax, ivory, hides, and orchilla weed have also been exported from this port.

IMPORTS OF AMERICAN GOODS.

Trade in Lorenzo Marquez during the year has been fair, and up to October 1 several vessels, two of which were American, arrived from the United States with general cargoes. A considerable quantity of American goods has also arrived through the new line of steamers from New York to the Cape. This line is much appreciated.

Consular Agent McIntosh, of Lorenzo Marquez, writes that now they can order as much or as little at a time as they want from the United States and be sure of getting it by a certain date, instead of having to order large quantities months ahead and never knowing when they would arrive. This steam line does not seem to have affected the sailing vessels, and the latter will probably be always in demand to carry oils and other goods that do not stand transshipment well, such as lumber and heavy and bulky articles.

RAILWAYS.

Work on the Transvaal extension of the Delagoa Bay Railway is progressing at a favorable rate, and the coming year will probably see it opened for traffic to the gold fields. President Kruger, of the Transvaal, says that the Delagoa Bay line and the Natal extension will come into Pretoria together, and be opened for traffic at the same time. There will then be three lines

running to the gold fields; the first from the Cape, over 1,000 miles in length; the second from Natal, some 450 miles in length; and the third from Lorenzo Marquez, 275 or 300 miles in length. As goods for the gold fields pay an average duty of 12 per cent to the Cape customs, 5 per cent to the Natal customs, and but 3 per cent to the Lorenzo Marquez custom-house, and as the difference in ocean freights from foreign ports to Cape ports and Delagoa is small (in some cases less than $1 per ton and rarely over $3), it is obvious that Lorenzo Marquez has a future before it; and, as it has the finest harbor on the southeast coast of Africa, it may very soon become a very formidable rival to the prosperous ports of the British colonies to the south.

WAR SCENES AT BEIRA.

Beira has also had a fairly good year, but unforeseen events have depressed trade. In the first place, the construction of the Beira Railroad is proceeding very slowly, and the first section has not been delivered to the railroad company by the contractors. Then the war in Matabeleland has stopped development in the interior for awhile, and not much will be done for some months yet, by which time it is hoped the country will have settled down into its normal condition. No hostilities were carried on in Portuguese territory; but there was much uneasiness, and some of the more timid ones feared that Gungunyana, a powerful native chief living in the Inhambane district, and who can muster probably 30,000 or 40,000 fighting men, a few thousand of whom are armed with rifles and smooth-bore guns, would go on the warpath. But he has kept quiet, postponing the day of conflict with the white man, which is bound to come sooner or later. The history of South Africa shows that there can be no progress nor security of life or property as long as large tribes of armed natives are allowed to roam in any country.

One of the leading merchants in Beira passed through here on his way to Europe a while ago. I had several long talks with him, and endeavored to show him that it would be to his advantage to deal in several lines of American goods, and to import them direct from the United States. I gave him all the information I could, and when he left here he said to me:

I have no time to visit the United States, as I must be back in Beira in May, when, I am confident, a very busy season will begin. I also have much business to transact in Europe, but I will communicate from Europe with some of your leading exporters and think I shall be able to do business with them.

BRITISH FORTIFICATION AT CHINDE.

In Chinde and Quilimane trade during the past year has been very good, and both ports are rapidly increasing in importance.

In Chinde the English Government has leased for ninety-nine years a tract of ground containing about one square mile, fenced it in, fortified and garrisoned it, and therein are now located docks, naval stores, and the factories of British merchants doing business in Chinde, who are thus en-

abled to import their goods without declaring them at the provincial custom-house. The foreign merchants, other than British and the Portuguese officials and merchants, are located outside the inclosure. The Portuguese look on Chinde as a sort of British port, and a dangerous rival to Quilimane.

EXPORTS FROM CHINDE AND QUILIMANE.

Large quantities of sugar, coffee, and ivory, as well as various oilseeds, rubber, and minor products have been exported from the two ports during the year. Their imports, principally cotton goods, provisions, naval stores, and building materials, have been large.

ZAMBESI PLANTATIONS.

The owners of plantations in the Zambesi valley have all done well. One sugar-planter who started but a few years ago has, during the past year, turned out over 600 tons of sugar, in addition to large quantities of rum and molasses, and has made money.

OUTLOOK FOR AMERICAN TRADE.

On the whole, it can be safely said that the province has prospered during the past year, that the incoming year is bright with promise, and that there never was a better time for our merchants to begin laying the foundations of a large and profitable trade with the leading ports of the province.

W. STANLEY HOLLIS,
Consul.

MOZAMBIQUE, *December 30, 1893.*

AUSTRO-HUNGARIAN EXPORTS TO UNITED STATES—1893.*

I transmit a statement showing the value of declared exports from the consular districts of Austria-Hungary to the United States for the calendar year 1893.

The total value of declared exports during 1893 amounted to $11,744,325, as against $10,197,576 in 1892, which shows an increase of $1,546,749.

The total increase is almost entirely covered by the immense increase in the amount of beet-root sugar exported from Prague. The other articles in which there has been a decided increase are coffee, glassware, hops, linen goods, umbrella fixtures, and beans and lentils.

The increase in glassware and jewelry is largely due to increased trade caused by the Chicago Exposition.

The articles in which there is a decided decrease in the amount exported are dried fruits, wine, and manufactured articles, such as buttons and fans.

The quarter ending December 31, 1893, shows a decrease of $841,229.77 when compared with the corresponding quarter of the preceding year. This

*See "Consolidated Statements of Exports," No. 162, p. 462.

decrease is evidently caused by the hard times in America, as there is no other reason sufficiently important to account for it.

Value of declared exports from the consular districts of Austria-Hungary (agencies included) to the United States during the year ending December 31, 1893.

Articles.	Buda-Pesth.	Prague.	Reichenberg.	Trieste.	Vienna.	Total.
Albumen				$960.22	$22,508.21	$23,470.43
Amber					16,780.93	16,780.93
Argols	$4,092.76					4,092.76
Art, works of			$432.73		33,536.44	33,969.17
Artificial flowers	134.38	$15,289.39	20,189.51		13,559.22	39,172.50
Baskets and basket ware	1,330.05	1,047.77	599.31		34,484.19	37,461.32
Beans and lentils	441,477.25	202,540.77		$8,434.41	21,628.30	728,180.73
Bed feathers		189,931.56			163.82	190,095.38
Beer		100,698.91	2,269.03		168.29	203,036.23
Beet-root sugar		3,299,391.83			7,562.62	3,306,954.45
Black lead		11,920.66			1,512.76	13,432.42
Bonnet frames			2,117.26			2,117.26
Books and papers	5,785.52	13,784.77			8,953.95	28,524.24
Brushes and bristles			472.75		13,532.69	14,004.44
Buttons		78,785.83	127,353.91		119,557.51	325,697.25
Carbon lights					29,255.75	29,255.75
Carlsbad Sprudel salt		33,340.26				33,340.26
Chenilles and embroideries	239.12	13,026.14			2,647.60	15,912.86
Cloth and woolen goods		17,300.61	4,444.49	153.79	98,325.48	120,224.37
Coffee and surrogates		1,498.61		218,234.75		219,733.36
Cotton goods		29,670.86	2,505.32		227,724.37	259,900.55
Cutlery		512.58	14,231.80		287.28	14,931.66
Cuttle bone				13,571.05		13,571.05
Dresses					2,350.31	2,350.31
Drugs and chemicals	30,364.33	27,915.58		8,079.09	54,132.61	120,491.61
Fans			2,064.18		207,746.11	209,810.29
Felt					10,696.47	10,696.47
Fruits, dried, etc	114,200.13	5,631.17		125,632.53	2,266.57	247,730.40
Furniture	5,508.19	980.55	217.21		76,494.34	83,200.29
Furs	915.33				795.96	1,711.29
Glassware	24,463.81	174,643.76	650,341.30		116,361.68	965,810.55
Gloves		208,918.79			83,192.14	292,110.93
Graphite					9,656.31	9,656.31
Gums and glue	9,395.17	13,327.88		69,731.13		92,454.18
Hair:						
Animal	309.62	3,814.43			15,598.78	19,722.83
Human		33,904.27	309.82		40.79	34,254.88
Hats					2,759.42	2,759.42
Herbs, roots, and leaves	17,420.32			16,270.02		33,690.34
Hops and lupulin		94,145.62				94,145.62
Insect powder and flowers				71,389.22		71,389.22
Jewelry		20,090.37	232,532.56		37,384.54	290,007.47
Leather and skins	8,848.35	3,816.39		171,392.40	51,992.80	236,049.94
Leather goods					42,853.07	42,853.07
Linen goods	459.39	184,332.87	347,401.60		279,063.66	811,257.52
Machines and parts thereof					1,191.00	1,191.00

Value of declared exports from the consular districts of Austria-Hungary, etc.—Continued.

Articles.	Buda-Pesth.	Prague.	Reichenberg.	Trieste.	Vienna.	Total.
Magnesite	.....	.....	.....	.....	$10,644.77	$10,644.77
Meerschaum, crude	.....	.....	.....	.....	37,070.70	37,070.70
Metal ware	.....	$14,802.76	$14,499.99	.....	102,504.62	131,807.37
Mineral water	$87,295.32	4,176.83	.....	$182.61	840.05	92,494.81
Mirror glass	.....	31,395.22	.....	.....	.....	31,395.22
Musical instruments	45.43	32,354.36	1,007.91	.....	6,654.15	40,061.85
Oils, paints, and colors	2,560.98	.....	180.87	95,544.69	2,855.74	101,142.28
Ozocerite and ceresin	.....	.....	.....	.....	19,473.40	19,473.40
Paper goods	.....	37,023.89	351.58	.....	7,457.39	44,832.26
Pearl blanks	.....	.....	.....	.....	19,781.71	19,781.71
Polishing earth	.....	.....	.....	5,819.46	.....	5,819.46
Porcelain and pottery	9,368.48	491,309.06	164,417.27	.....	52,572.14	717,666.95
Potash	.....	33,731.31	.....	.....	115.22	33,846.53
Pulp	58,495.27	80,365.82	.....	.....	90,367.35	229,228.44
Scientific instruments	.....	.....	.....	.....	8,774.95	8,774.95
Seeds	1,596.58	.....	.....	8,294.98	13,858.99	23,750.55
Shell and bone ware	.....	.....	.....	1,196.28	29,039.06	30,235.34
Shoes and boots	.....	.....	.....	.....	18,462.39	18,462.39
Silks and velvets	.....	14,866.98	7,995.25	.....	236,917.45	259,179.68
Skeletons	.....	1,395.83	.....	.....	2,200.89	3,596.72
Smokers' articles	182.70	1,151.19	348.04	.....	105,024.35	106,706.28
Soap and perfumery	.....	.....	.....	.....	3,775.23	3,775.23
Sponges	.....	.....	.....	8,901.70	.....	8,901.70
Sparterie	.....	.....	8,606.82	.....	1,211.75	9,818.57
Stained glass	.....	.....	.....	.....	7,884.92	7,884.92
Stationery	.....	2,452.54	.....	.....	8,909.40	11,361.94
Tobacco	.....	.....	.....	321.12	1,737.90	2,059.02
Toys	.....	16,446.36	4,991.55	.....	4,028.68	25,466.59
Umbrella fixtures and sticks	16,290.74	.....	170.63	.....	114,786.93	131,248.30
Wax figures	.....	.....	.....	.....	3,497.08	3,497.08
White lead	.....	.....	.....	7,202.63	.....	7,202.63
Wines and liquors	49,334.89	2,343.85	.....	6,963.17	34,324.42	92,965.73
Wooden ware	.....	366.80	6,476.83	.....	22,101.86	28,944.89
Wool	2,980.04	88,317.46	.....	.....	65,769.02	157,066.52
Miscellaneous	589.01	11,740.63	21,333.80	4,786.22	22,587.46	61,037.12
Total in 1893	893,682.56	5,643,892.12	1,617,763.32	887,103.47	2,701,883.47	11,744,325.41
Total in 1892	629,545.91	4,287,419.50	1,510,176.65	1,015,374.00	2,755,060.11	10,197,576.17
Total in 1891	339,611.00	8,753,695.67	1,152,343.94	827,137.86	2,522,585.85	13,595,374.32
Total in 1890	533,095.00	6,251,455.59	1,086,017.94	1,795,918.87	4,688,738.17	14,355,225.57
Total in 1889	338,446.41	2,826,269.99	622,847.02	1,209,357.42	4,124,925.49	9,121,846.33

MAX JUDD,
Consul-General.

VIENNA, *February 2, 1894.*

TRADE AND COMMERCE OF NEW CALEDONIA—1893.

IMPORTS AND EXPORTS.

Imports to this colony have been greatly lessened on account of the new fiscal tariff, which went into force here on the 1st of February, 1893. Being entirely a prohibitive one for goods of foreign manufacture, it has greatly affected the importation of certain classes of goods of English, Australian, and German origin. Of course, there are some exemptions, as there are certain lines not manufactured in France, which consequently do not compete with French manufactures.

The imports and exports of merchandise pretty well balance each other, as the statistics show that the value of goods imported into the colony for 1893 was, in round numbers, 12,000,000 francs, and the exports 12,500,000 francs. The exports consisted mostly of minerals and represented 80,000 tons, of which 75,000 tons were nickel and the remainder cobalt, chrome, iron, argentiferous lead, and other ores. Copra also forms a considerable item in the exports.

AMERICAN GOODS.

Before the introduction of the tariff all goods of American manufacture came here through the Australian colonies, and consequently suffered the same fate as other foreign goods. The principal items still introduced here are manufactured American tobacco, except the cut article, and North American lumber.

The following goods are exempt from the tariff or are in some cases liable to a modified rate: Wheat, oats, rye, potatoes, fruits (whether fresh or canned), tobacco (plug, round, or twisted), gums, lumber of all sorts, bark, hops, stone (not dressed), coal, petroleum, kerosene, paraffin, vaseline, cast and wrought iron, copper, yellow metal, chemicals of all sorts, ropes, leather, saddlery, agricultural implements and machinery, boilers, picks, shovels, axes, rolling stock for railways, carriage makers' material, anchors, chains, cables, and ordinary carts and drays.

Salted meats in kegs or cans, and salted, dried, or smoked fish, except cod, herrings, mackerel, and sardines, are subject to a modified tariff, as mentioned before.

Besides the customs tariff as above, there is a local ad valorem duty of 4 per cent on all goods, from whatsoever source, introduced into the colony.

LUMBER.

Owing to the fact that the firms dealing in this line overstocked themselves, there was no lumber imported during the year 1893 from the States of Oregon and Washington. But for the current year there are several cargoes ordered, and the trade is expected to be brisk in this line.

COAL.

Besides the rich mines of nickel, cobalt, chrome, etc., with which this country is so well endowed, the colony has hailed with sincere pleasure the discovery of good steam coal on the western watershed of the great central range of mountains which run the whole length of the island from north to south.

The coal has been tested by the French men-of-war on the station with satisfactory results, and the analysis has given the following:

	Per cent.
Moisture	1.5
Volatile hydro-carbon	36.02
Fixed carbon	57.13
Ashes	5.04
Sulphur	0.31
Total	100

It is impossible yet to determine the value of the coal strata and layers, but the extent of the field is computed to be over 130 miles in length. If the coal is wisely exploited, no doubt it will prove of great benefit to French commerce, as well as to the French navy in Pacific waters, France being entirely dependent in this hemisphere for her fuel supply on Australia.

LITHOGRAPHIC STONE.

On a small island off the mainland, and about 28 miles from Nouméa, called "The Mato," a very important discovery of rich lithographic stone has been made. Samples have been submitted to both European and Australian experts, and the stone is pronounced to be of a quality equal, if not superior, to the best Bavarian stone. The discoverers, who are also proprietors of the mine, are in hopes of realizing great wealth by their important discovery, but being, as in all similar cases, men without capital, they may have to wait awhile before being able to realize their hopes. The isle of Mato being a very lonely spot, and only occasionally visited by fishing craft, has remained unexplored up to the present time.

WATERWORKS.

During the year 1893 the new waterworks have been finished, and the town of Nouméa is to-day supplied with abundance of water of a remarkably pure quality. This water is carried from the River Dumbea, 28 kilometers distant, by underground pipes, and takes its source from a beautiful spring running between high and abrupt cliffs, reminding one in a way of the cañons of Colorado. The cost of bringing this water has been entirely borne by the local budget, and amounts to a little over 3,000,000 francs.

HARBOR AND QUAYS.

Extensive works have also been accomplished and continue in hand in the harbor of Nouméa. A solid stone quay is nearly completed, and a vast area of land has been reclaimed and filled in. All this has been done by the

local administration, and entirely supported by the colony without help or subsidy from the home government. The quay is already completed to 300 meters, and there is sufficient water to allow vessels of the heaviest tonnage to come alongside.

FLOUR MILL.

During the year 1893 the first flour mill in the country was erected in the town of Nouméa. Mr. John C. Morgan, a naturalized French subject, obtained from the French Government a concession for the supply of flour for a period of ten years. He has erected a substantial stone mill, with patent steel rollers and all the latest improvements, and the structure is said to be one of the most perfect of its kind in Australasia. The Australian wheat harvest of 1893 having proved to be a most plentiful one, the price of wheat is abnormally low this season. Mr. Morgan is not only doing a good thing with his Government contract, but can successfully compete with local importers of flour here. Already the importation of this article is sensibly diminished, and in a short time flour will cease to be an item of importance in the list of imports.

TRANSPORTATION.

Before concluding my report I should like to say a few words on the penal system of this colony.

Some ten years back the French Government, wishing to diminish the penal element here ceased to send out the worst class of criminals. No men whose sentences were over ten years were transported to this settlement; this diminished the number of life-sentence men, the worst class of criminals. The liberated convicts, or *libérés*, as they are here called, are gradually taking the place of the convicts, and find no difficulty in obtaining sufficient and remunerative employment in the mines and in agricultural industry. They show a tendency to remain in Nouméa, but the administration, knowing well that there is not enough work here for all, has enacted a law which compels the newly liberated convicts to seek employment outside the capital, thus compelling them to work in the mines or at agriculture, and preventing them from relapsing into vagabondage, against which there are very stringent laws in force. Some of these *libérés*, owing to their good conduct and determined efforts to lead an honest life, are rehabilitated and reacquire their civil and political rights. The descendants of these *libérés*, considering their origin, have proved fair citizens.

Besides the convict element, we have to deal with a new evil, the *recidivistes*, or the class of habitual petty criminals. These men and women come from large cities, where their criminal habits bring them into frequent collision with the police. They are themselves offsprings of criminals, and vagabondage is their birthright. They are relegated to New Caledonia, and are here made to work to earn their bread; for their rations are so poor that to augment them they have to earn a few pence a day by work, which, by the way, is not so hard as some free laborers have to undergo. The *reci-*

divistes are kept entirely apart from the convicts and do not work in the same gangs. Up to the present they have given better results than was at first expected of them. They are not a dangerous class of criminals, but their vagabondage and concomitant proclivities bring them into frequent contact with the police.

In conclusion, I may say that, taking into consideration our surroundings, the commercial and vital prospects of the colony are far from discouraging, and when the time comes, for sooner or later it must arrive, for the total suppression of the penal establishment, the natural wealth and resources will forcibly draw to New Caledonia a free and laborious population, which in developing its wealth will make this island one of the richest and most prosperous of the colonies in the southern hemisphere.

L. LE MESCAM,
Vice-Commercial Agent.

NOUMÉA, *January 12, 1894.*

AUSTRALIAN WOODS FOR STREET-PAVING.*

At the present time, when this country is recovering from the recent financial cyclone, and when the business outlook is daily growing more promising, it is not inappropriate to consider by what means the commerce between the United States and the Australian colonies can be increased to mutual advantage.

It has occurred to me that a large and profitable business can be done between the two countries by the shipping to the United States of wood blocks for street-paving. The advantages to be derived are manifold.

Wood pavements are admittedly the best in the world, and of late years they have only been abandoned in the United States owing to the fact that no wood of native growth could be found that would stand the wear and tear of the heavy traffic in our large cities.

In this country one is compelled to notice and give the palm to the street pavements made from blocks of red and blue gum, a wood grown in this country, which have proved to be equal to all requirements.

I have noticed in this city and in Sydney, where strips of the wooden pavements have been joined to a stone pavement, and where both have been subjected to the heaviest wear, that the wooden pavement has worn even better than the stone, and, where the two pavements join, the edges of the wood blocks are not even chipped or worn.

It is a pity that our country, which is so far ahead of other lands in many respects, should be so far behind in this matter of street-paving.

Can we not adopt the Australian wood blocks to advantage? If a fair trial could be given by some of our cities, I am sure that it would result in

* See "Street-Paving in Australian Cities," No. 154, p. 257.

the adoption of Australian timber for street-paving in the United States and thus open up a new industry between the two countries.

Perhaps the very best timber obtainable for this purpose is the Tasmanian blue gum. This has worn here for six or eight years. In all that time no repairs have had to be made, and the pavements are as good to-day as when laid.

The Tasmanian government is interested in the matter, and have taken active steps to place samples before our contractors and municipal authorities.

An American exporting and importing firm doing business here, with a branch in New York city, recently visited Hobart, the capital of Tasmania, and laid the matter before the premier. They were most courteously received, and at their suggestion the premier caused to be shipped to them in New York samples of these blocks, which can now be seen at the office of Messrs. Trowbridge & Terry, 531 Broadway.

While these hard woods are plentiful here, it must be remembered that the cost of freight, etc., would bring them to New York at a price probably no lower than cedar blocks can be obtained at home; but consideration must be given to their durability and vast superiority.

It is not unlikely that in view of opening up this trade with the colonies, and at the same time benefiting our own land, arrangements might be made to admit these blocks free of duty.

The demand at home will be endless and the supply here inexhaustible, and the benefits resulting from the adoption of these blocks apparent. For instance, all sailing vessels coming to this port from the United States are, in nearly all cases, obliged to go to other ports seeking return cargoes. Should the wood blocks be accepted and used in the United States, these vessels could all get return freights here, and thus the trade between the two countries would be profitably increased.

DANIEL W. MARATTA,
Consul-General.

MELBOURNE, *January 12, 1894.*

GERMANY'S FOREIGN COMMERCE IN 1893.

In my report of December 22 last* concerning the industrial and commercial situation in Germany, the statement was made that notwithstanding the general complaint of hard times and the despairing tone of the commercial press, a closer study of individual industries and special branches of trade gave the impression that business was, on the whole, fairly active, and that, although profits might in many cases be small, the volume of production and sale had been well maintained and the general situation was in fact more favorable than was popularly supposed.

* Published in No. 161, p. 353.

This statement, which was at that time somewhat in the nature of a prediction, based upon certain specified indications and such statistics as were then available, is now strikingly confirmed by the published statistics of Germany's foreign commerce for 1893. These show the aggregate values of exports and imports during the year, and although not absolutely accurate, are sufficiently so for the purposes of comparison. As the import duties under the German system are specific, the records of the custom-houses show the weight or quantity of imports, but not their value, and since statistics of values are so essential in national economy, the plan was adopted two years ago of preparing estimates of such values based upon the known quantity of each article imported and its average market price during the year. These statistics do not extend beyond the year 1892, but they furnish the material for the following comparison between the foreign commerce of that year and 1893.

Year.	Imports.	Exports.
	Marks.	*Marks.*
1892	4,227,004,000	3,150,104,000
1893	4,184,901,000	3,283,456,000
Increase		133,352,000
Decrease	42,103,000	

There is thus disclosed a decline of 42,103,000 marks in the imports and an increase of 133,352,000 marks in the exports of 1893, as compared with those of the preceding year. This is certainly a satisfactory showing for a year which was not generally considered a prosperous one, and in which German exports to the United States were sharply reduced. The total declared exports from the district of Frankfort and the sixteen consulates under its supervision during 1893 and 1892, respectively, were as follows:

First quarter, 1893	$10,045,810.69
Second quarter, 1893	10,447,921.97
Third quarter, 1893	8,343,323.36
Fourth quarter, 1893	5,520,985.81
Total for 1893	34,358,041.83
Total for 1892	38,902,166.07
Decrease in 1893	4,544,124.24

The general increase in the exports of Germany during the past year has therefore been wholly independent of its trade with the United States, and illustrates how successfully the Germans are pushing their commerce with South and Central America, Mexico, Africa, England, Austria, Italy, Belgium, and, until the treaty complications arose last summer, with Russia. The nature and meaning of this progress will be indicated by the following tables, reduced to dollars, in which the comparative exports and imports of the two years under consideration are classified roughly into principal groups and values for convenience of comparison.

Imports into Germany in 1892 and 1893.

Articles.	1893.	1892.	Increase.	Decrease.
Cotton and manufactures of	$61,391,862	$58,696,036	$2,695,826	
Drugs, colors, and chemicals	57,939,910	56,033,054	1,906,856	
Grain and farm products	141,197,070	157,281,348		$16,084,278
Earths, ores, and precious metals	70,994,448	75,624,976		4,630,528
Hides and skins	35,119,994	30,135,560	4,984,434	
Wood and manufactures of	50,057,112	51,305,184		1,249,072
Groceries and confectionery	131,310,788	132,877,304		1,566,516
Oil and grease	37,788,450	41,664,280		3,875,830
Silk and manufactures of	37,148,944	38,740,926		1,591,982
Animals and animal products	26,499,396	25,410,308	1,089,088	
Cattle	48,534,864	58,415,910		9,881,046
Wool and woolens	97,499,794	96,162,234	1,337,560	

Exports from Germany in 1892 and 1893.

Articles.	1893.	1892.	Increase.	Decrease.
Cotton and manufactures of	$47,051,410	$47,928,440		$877,030
Drugs, colors, and chemicals	66,065,944	62,365,758	$3,700,186	
Iron and manufactures of	62,632,318	55,777,442	6,854,876	
Earths, ores, etc	48,173,580	56,424,326		8,250,746
Glass and glassware	10,365,376	8,984,976	1,380,400	
Machinery and instruments	29,022,196	28,490,504	531,692	
Clothing, etc	23,676,008	23,374,932	301,070	
Hardware	18,641,112	18,065,152	575,960	
Leather and manufactures of	35,168,784	33,419,008	1,749,776	
Groceries and confectionery	82,119,044	70,894,012	11,225,032	
Paper and manufactures of	22,810,634	22,521,940	288,694	
Silk and silk goods	43,306,242	42,938,056	368,186	
Coal	33,967,360	31,228,456	2,738,904	
Cattle	6,554,758	5,679,156	875,602	
Wool and woolens	79,352,056	75,672,338	3,679,718	

The most notable decline in the import list is in the class of cereals, which relates so directly to the interests of the United States. The import values were:

Cereals.	1893.	1892.
Wheat	$25,732,798	$47,414,398
Rye	8,655,614	21,149,632
Oats	6,499,066	2,350,488
Barley	35,339,384	15,356,386
Corn	18,928,854	17,839,766

But it must be remembered that the market values of most cereals were in general much lower in 1893 than during the preceding year, so that the falling off in import values is relatively greater than the actual decline in quantity. The foregoing figures reflect accurately the agricultural situation during the past year. Imports of wheat and rye declined because the crop of 1892 was good and filled the deficit left by the bad harvests of 1891, and,

moreover, the crop of 1893 was fair. The imports of corn, oats, and barley increased because the drought of last spring and summer was especially severe on grass, clover, and forage grains, thus creating a deficit in feed which will have to be met by large importations before another crop can be grown.

In the export statistics as above given, the most notable increase is in the two groups "iron and steel manufactures," and "groceries," which last includes sugar. The loss in the cotton and precious-metal groups may be attributed to the tariff conflict with Russia.

THE GENERAL DECLINE OF VALUES.

This exhibit would be incomplete without some more detailed allusion to the general decline in the value of nearly all food materials which has taken place in Germany, as elsewhere, during the last six months of 1893, and which has, for the first time in several years, helped to ameliorate the condition of the working people and balance in some degree the decline in wages and the uncertainty of employment. In the following tabular statement the average price in marks of each article named, for the years 1891 and 1892, is compared with the mean market value which prevailed during the month of October, 1893.

Articles.	1891.	1892.	October, 1893.
	Marks.	*Marks.*	*Marks.*
Rye	211.13	176.34	125.50
Wheat	224.21	176.41	142.94
Oats	165.63	149.44	166.76
Barley	153.33	148.10	143.00
Hops	220.00	341.82	500.00
Potatoes	41.67	54.65	30.00
Cut beef	110.93	107.93	99.50
Pork	102.57	110.40	110.00
Rye flour	29.05	23.17	16.31
Wheat flour	31.17	26.60	20.00
Butter	170.39	219.22	180.00
Sugar, raw	35.92	36.68	28.90
Oil	60.19	51.86	47.05

The only exceptions to the general rule of decline are therefore oats, hops, pork, and butter, all of which may be ascribed directly to the effects of the drought, which, as already remarked, increased the local prices of forage grains and such other coarse farm products as are not governed by imports and general market values throughout the world.

FRANK H. MASON,
Consul-General.

FRANKFORT, *February 5, 1894.*

IMPORTS OF SALVADOR—1893.

The Government of Salvador has just issued a comparative table of imports to this country for the second quarter of 1893, from which I quote some facts of interest.

It appears that the chief exporters are the United States, England, France, and Germany, in the order named. There are twelve other countries reported, but none of them exceed the amount of 10,000 pesos for the three months stated, and I therefore omit them altogether.

Articles.	United States.	England.	France.	Germany.
	Pesos.	*Pesos.*	*Pesos.*	*Pesos.*
Cotton thread	11.85	3,822.65	2,595.62	.....
Cotton goods	7,985.47	83,639.65	9,772.60	7,907.16
Sundries	21,334.38	15,849.35	13,380.97	9,602.58
Free of duty	36,438.36	1,774.62	561.49	237.71
Beer	7,841.27	2,428.65	1,134.83	3,291.95
Glassware	3,569.18	68.22	442.10	1,077.86
Shoes, etc	88.10	391.30	3,280.78	2,541.08
Eatables	6,403.11	1,582.09	3,937.42	1,216.54
Drugs and medicines	4,411.25	1,988.58	1,792.92	1,037.53
Hardware	2,959.51	5,099.04	3,731.36	5,516.51
Wheat flour	52,179.34	.....	.....	.....
Jewelry	.....	.....	.....	251.89
Linen thread	.....	29.60	.....	.....
Linen goods	62.54	139.50	278.00	146.00
Woolen thread	.....	92.00	.....	40.00
Woolen goods	1,546.75	4,004.23	4,196.16	1,302.58
China ware	4.56	10.61	270.90	2,652.74
Books	.....	.....	1.25	.....
Liquors	2,057.05	2,684.18	13,512.30	5,067.75
Coin	.....	2,275.00	.....	.....
Haberdashery	71.67	.....	592.12	82.09
Wood (lumber)	142.26	.....	.....	.....
Furniture	1,158.73	318.11	826.17	957.90
Marble (cut)	2.78	.....	.....	.....
Machinery	3,344.43	35.86	.....	36.33
Kerosene	3,410.78	.....	.....	.....
Flax thread	37.60	25.40	.....	.....
Flax goods	.....	.....	13.40	.....
Stationery	1,130.27	91.00	399.00	393.29
Silk goods	1,566.79	2,460.90	160.00	261.78
Hats	180.75	214.50	297.55	.....
Coffee sacks	61.60	391.95	580.65	.....
Mixed goods	.....	136.50	.....	379.00
Cigars and tobacco	.....	.....	.....	943.00
Wines	13,253.90	7,047.65	3,728.85	1,676.00
Candles	.....	.....	.....	39.60
Rubber goods	.....	238.00	283.00	.....
Perfumery	206.40	179.70	252.60	301.00
Total	172,460.68	137,008.84	66,021.40	46,799.27

From this extract it appears (1) that the United States are the chief exporters to Salvador; (2) that but for the one article of wheat flour, which is

wholly supplied by the United States, and which takes the lead of all our exports, England would occupy the first place; (3) that the reciprocity agreement (low tariff at home) nominally existing gives us practically a monopoly on goods admitted to Salvador free of duty (though, strictly speaking, none are thus admitted), and that such goods form, next to cotton goods (the article of greatest import from any country) and flour (the greatest from the United States), the most prominent item of import here; (4) that in machinery the field is all our own; (5) that, on the other hand, in hardware, we fall behind our competitors, mainly because we do not sell these people the implements they are used to and want; (6) that in wines and liquors, though gaining, we are still behind, while in beer we exceed the imports from the other three countries combined; (7) we lead in eatables, glassware, drugs, stationery, and furniture; (8) we control absolutely the market in kerosene oil; (9) in silk goods we are second, following England, and in woolen goods we are third, only a little ahead of Germany; (10) in cotton goods we export less than one-twelfth of all.

ALEXANDER L. POLLOCK,
Consul.

SAN SALVADOR, *January 25, 1894.*

THE FAN INDUSTRY OF VALENCIA.

Folding fans, which came from China, were first introduced at the French Court in the seventeenth century, whence they found their way into Spain, becoming in this country so popular that every class of society adopted them in preference to any other kind, such as, for instance, the oriental flag fans or the American palm-leaf fans, which are not liked in Spain. The folding fan is used here not only in the drawing-room and the theater, but also in the street and in church; nay, the usage is such all over the country that the market women selling their vegetables and peasants sitting before their doors are seldom without a fan in their hands during the summer months. Indeed, they often supersede the use of the parasol.

Such being the demand, the manufacturing of this article offered naturally a profitable result, and Valencia is the place where the fan industry assumed large proportions. About the year 1830 factories of some importance were established here, which soon increased their field of work on account of the skillfulness of the workmen and taste of their principals, reaching their height of importance during the years 1865–'83, when they found that they could no longer compete with cheaper Japanese fans; but on this point manufacturers soon found protection—the Spanish Government raising the import duty on foreign fans.

About the same time the manufacture of these fans was divided into two separate branches, one devoted exclusively to the framework and the other to mounting the fan, without, however, any detrimental effect upon the in-

dustry in general. Of the former branch, there exist at present only two firms, who cut or saw the frames by machinery, while of the other manufacturers twenty-eight can be named who employ about 300 laborers of both sexes, doing their work by hand exclusively.

The frames of these Valencia fans are either of wood, bone, ivory, mother-of-pearl, or tortoise shell, of which the last three kinds are imported, while the wood employed is mostly olive and Spanish, or else beech wood imported from Austria. The fan itself is made of paper, cloth, silk, lace, and feathers.

The ornamentation of the paper fans is done in Spain. It may be ordinary print, chromo, woodcut, or hand painting in water colors. These pictures represent for the most part scenes from Spanish life, with a preference for bull fights, also costumes from the different provinces, scenes from popular plays at the theaters and operas, and also public festivals. Those painted on cloth and silk show, generally, love scenes, ladies, elfs, flowers, birds, or insects.

While feather fans are imported from either Vienna or Paris the lace fans are of home manufacture, though the lace for mounting, when not of the old Spanish kind, may be either from Brussels or Nottingham. The number of fans manufactured during the year represents the value of about $75,000, of which $50,000 worth are sold throughout Spain and $25,000 worth exported to Italy and South America.

The proportion of the different qualities made here is as follows: Of ordinary fans, 50 per cent; of better or middle-class fans, 30 per cent; of good fans, 10 per cent; and of the very best kind, 10 per cent.

The value of these fans varies from $1.25 per gross to $6 apiece.

The wages paid for this kind of work are very low—on the average 25 cents per day, *i. e.*, one receives from 15 to 40 cents, according to ability. Even the painters, who often produce very pretty pictures on silk, receive but a scant recompense, yet strikes have never been known in this industry.

The man who might be called the originator of this industry in Valencia was Mr. José Colomina, who, for his successful endeavors, received the title of marquis from the Spanish Crown. He possessed, besides his factory, salesrooms at Seville, Malaga, Barcelona, and in Madrid two stores. His successors have retired from this enterprise with a considerable fortune.

THEODOR MERTENS,
Consular Agent.

GRAO, *February 10, 1894.*

NEW ZEALAND LABOR LAWS.

It may not be out of place, at the outset, briefly to refer to the cause of the severe wave of business and industrial depression that passed over this land a few years ago. Like the other colonies of Australasia, New Zealand, in an evil hour, listened to the voice of the charmer and placed itself in the

hands of the London money-lenders. The borrowing mania suddenly seized the people—a mania which resulted most disastrously in the end. For a time, however, they held high carnival; the millions borrowed produced unparalleled prosperity while the money lasted. The progress under the influence of the borrowed money was both unreal and unsubstantial. All kinds of property and business enterprises received a fictitious impetus; mushroom institutions of every description were suddenly called into existence under the guidance of men who were careless of consequences and indifferent to practical results, and, in most instances, without either money or experience, but actuated by the one absorbing passion—suddenly to become rich. The marvelous progress made by the United States in a few years and the number of millionaires created there were pictured in glowing terms, until almost the entire population was seized with a wild spirit of speculation, which brought ruin to many a home.

After 1881 no borrowing took place, expenditure on public works ceased, and thousands of men were thrown out of employment. Business collapsed, speculation came to a standstill, capitalists became frightened and locked up their money, the courts were overwhelmed with bankruptcies, men left the country by thousands, and despair and misery overspread the land. These unhappy conditions continued down to 1890–'91. In 1890 the people showed their displeasure at the manner in which the affairs of the country had been conducted by defeating the government, which, with very slight changes, had ruled the country through the borrowing period and also through the era of unexampled depression. The power of labor was now felt for the first time in the history of New Zealand politics, owing to the abolition of plural voting and property qualification. The new Parliament contained a considerable number of bona fide labor representatives; indeed, a large majority of the members then elected appeared to be anxious to support legislative measures calculated to promote the welfare of the masses generally as against the favored few who had, under the old system, dominated the country.

Under the new Parliament an era of land and labor legislation was inaugurated, which, for boldness of conception, practical execution, broad and enlightened progressiveness, has not been equalled by any country in modern times. I can briefly refer only to a few of the acts against unscrupulous promoters of worthless schemes and companies which inflicted irreparable loss, owing to the laxity of the law that enabled them to issue the most glittering prospectuses to the serious detriment of the people. An act was passed called the "Promoters' and Directors' Liability Act, 1891," which made it an offense, punishable by both fine and imprisonment, for any person or persons to issue a false prospectus for the formation of any firm, company, or corporation. This act made the directors and promoters of such undertakings collectively and individually liable to the shareholders, and this measure has effectually stopped the formation of these worthless institutions, which had hitherto flourished at the expense of the people.

An act designated the "Employers' Liability Act" was next passed, which afforded the most ample protection to labor, both as to wages and as to responsibility in case of injury, a protection not before enjoyed except in a limited and unsatisfactory manner.

The next act passed was one of the greatest importance to the working people of the colony—the "Factories Act, 1891." This was a much-needed regulation, as many of the factories and workrooms were insufficiently lighted and uncleanly kept, with no regard to the health or comfort of the workers. All this is now changed, the workrooms and factories being conducted under the direct supervision of an inspector appointed by the Government, whose duty it is to see that the prescribed rules and regulations as set forth in the factories act are rigidly enforced. No person under 18 years of age and no woman shall, except on half-holidays, be employed continuously in any factory or workroom for more than four and a half hours without an interval of at least half an hour for a meal. No females or persons under 16 years of age are permitted to take their meals in any factory or workroom where they are engaged in any manufacturing process, unless such building is of open construction, affording ample room, light, and air. The enforcement of this provision is entirely in the discretion of the inspector. If, in his judgment, any factory or workroom does not comply with the prescribed regulations, he has the power to order a dining room to be provided for the employés. No person is allowed to employ in any factory any boy under the age of 16 years for more than forty-eight hours in any one week. Children are not permitted to work in either factories or workrooms. Persons under the age of 16 years are not allowed to work in factories, and in all cases the inspector of the district must be satisfied that the age of the applicant is 16 years or over, and even then the inspector may refuse to issue a certificate if, in his judgment, the applicant is physically unfit to engage in such occupation.

The following compulsory holidays are allowed with full pay: Christmas, New Year, Good Friday, Easter Monday, Her Majesty's birthday, and every Saturday afternoon from 1 o'clock.

Many other labor measures have been passed during the last three years, but an extended notice of them would not, perhaps, be appropriate here. One of the most important measures which passed at the last session of Parliament was the "Industrial Conciliation Bill." This act passed the lower house, but was so emasculated by the upper house that its friends in the lower house refused to agree to the changes made. Thus the bill was lost for the time being, but it is certain to be reintroduced at the next session of Parliament, and with a fair prospect of becoming law. By this bill it was intended to prevent strikes by submitting all labor disputes to a board of arbitration, one of whose members was to be a judge of the supreme court. The submission of labor disputes to this board was compulsory and the enforcement of its findings was equally compulsory under severe penalties. It was to the latter clause that the upper house took objection, contending that it would

be impossible to compel the disputants to comply with the decision of the conciliation court, and also that the enforcement of such a law would be an infringement of the liberty of the subject. As to the merits of this contention I have, of course, nothing to say, but if the bill will accomplish even one-half of what is claimed for it, it is a pity it has not become law. The labor organizations are quite prepared to accept the bill as it passed the legislature, but the capitalists and employers pretty generally appear to be very antagonistic, preferring to continue as at present and take their chances of making terms with their employés or even run the risk of a strike, with all its evil consequences, rather than submit to conditions which they might deem injurious to their business and repugnant to their long-established ideas. But nothing is more certain than that they will ultimately have to submit to the new order of things. They have fought every measure that has passed Parliament during the last three years, both in the house and outside, when they considered their prerogatives were in anyway infringed upon, but in nearly every instance they had to fall back beaten.

Though many of the laws that have been placed upon the statute books of New Zealand during the last few years have been characterized as "socialistic" and "revolutionary," they are all working admirably, giving the utmost general satisfaction. It can be truly said that the tendency of legislation has been to reach the landless class, and to teach them their rights and how to obtain them. There has been no attempt to tear down established interests, but at the same time no effort has been spared to elevate the condition of the masses by placing within their reach all that rightfully belongs to them, or that would tend toward their education and material prosperity. Every unselfish and unbiased person must admit, no matter what his personal predilections may be, that the country, in the short space of three or four years, has made wonderful progress. This is, I think, largely owing to the beneficial effect of recent legislation, and also, of course, to the recuperative and productive capabilities of the colony. At the same time, to one accustomed to the broad principles underlying legislation in the United States, creating individual independence and self-reliance in the people, the tendency of legislation in this country affords an unfavorable contrast. Here the State is looked to to do almost everything. The State is expected to form roads and build bridges in the country, to find remunerative occupation for the unemployed, as well as to support asylums, hospitals, and charitable institutions for the aged poor and the helpless and infirm members of society. It owns and operates the railways of the colony, the post-offices and telegraph and telephone lines, out of which there is made a considerable annual profit that goes to swell the general revenue, thereby relieving taxation to that extent. There is also a Government life-insurance department, which enters into spirited competition for business with both local and foreign companies. There is also a Government savings bank which, with the insurance department, yields a handsome profit every year. All these profits are available to assist in defraying the expenses of the Gov-

ernment. All these State institutions are satisfactorily and economically conducted, except the railways, to the management of which, whether ill or well founded, some exception is taken.

COÖPERATIVE WORKS.

The public works of the colony are now conducted on the coöperative principle. When a railway or highway of any kind is to be constructed a Government engineer makes a survey and estimate of the cost. Upon the basis of this estimate the work is given in small sections to gangs of men, who each receive an equal proportion of the money earned. There is no calling for public tenders, thus dispensing with the contractor altogether, whose profits, if any, are divided among the men. The Government supplies tools and necessary material, if the men are unable to do so, charging first cost only for whatever is supplied in this way. The work is conducted under the nominal direction of the Government engineer, whose duty it is to give measurements and levels and generally to see that the work is properly done. The men work very hard and earn good wages. By this means they are enabled to pocket the profits that would go to the contractor under the old system, and the Government gets the work done at no greater cost than formerly. One peculiar feature of this method is that the young, robust, and middle-aged men work together, while the weaker and less vigorous are formed into gangs by themselves. The younger and stronger men object to their older and necessarily weaker brothers because they are no longer able to perform their full share of the work. The old men are, however, perfectly content to have the opportunity to earn a livelihood in this way, and they do so very comfortably. The coöperative system has given great satisfaction and has to a large extent solved the problem of the unemployed in this colony.

THE LABOR BUREAU.

Another excellent system which works in conjunction with the coöperative principle is the "labor bureau." There are several of these bureaus in charge of Government agents throughout the colony, where employers of labor can send orders for men. If a man is out of employment he makes application to the agent in charge of the labor bureau in his district, who sends him to some suitable occupation, paying for his transportation, if necessary, and having it refunded from the first moneys the man earns. In this way the labor market is always open, and information is obtainable free of charge to the employer and employé.

There are many other institutions of a character similar to those mentioned, all of which are calculated to relieve distress.

Notwithstanding the decidedly paternal and, in many respects, socialistic tendency of legislation in New Zealand, some of which is naturally repugnant to those who, like myself, have not been accustomed to "state socialism," yet the fact remains that it all appears to blend harmoniously with the sentiments and requirements of the people. This is the best evidence

that can be adduced upon a closer acquaintance with its practical working here in New Zealand that it is not the "bogy" it is generally believed to be.

Among the vast majority of the population there are no complaints, generally speaking, and no faultfinding. All seem to appreciate what is being done for them, each working with a cheerful will to make all these new undertakings and innovations a success.

JOHN D. CONNOLLY,
Consul.

AUCKLAND, *January 25, 1894.*

AMERICAN TRADE WITH PERU.

Conceiving that the first duty of a consul of the United States is to acquaint the Department of State with the obstacles to the extension of the commerce of his country which may exist in his jurisdiction, I venture to submit views on this important subject resulting from my observations on journeying to my post and since my arrival.

I must prelude by stating that the once important commerce of the United States in the countries of the Pacific coast of South America has dwindled to proportions incompatible with the magnitude of American industries, and that Germany, England, and other European countries have, in the meantime, pushed their interests in these parts with striking success.

In substantiation, I need but draw attention to statements from the newspaper El Porvenir, of Callao, relative to the operations of the custom-house at this port. The first shows eleven policies from Germany, sixteen from England, and four from the United States on February 10, 1894; the second, twenty-eight from Germany, eleven from England, and three from the United States on February 14, 1894.

What percentage of the loss of this trade is attributable to the economic policy which has prevailed in the United States, the Department of State can best determine. The failure of the American people and Government to provide easy, cheap, and quick transportation for mails, freights, and travel must, however, be largely accountable for this condition.

In these days commerce moves with steamships or railways, and, as long as the United States do not provide them, the European steamship lines to Colon and around Cape Horn will take to Europe the trade of that region of South America which nature has placed within easy grasp of the American people.

A glance at the map shows that the Atlantic coast countries of South America are closer, perhaps, to Europe than to the United States. This justifies the preponderance of European commerce in those countries.

On the Pacific coast of South America the geographical position is reversed. Lima, the capital of Peru, for example, is on the same longitudinal line as Washington city. It, and its seaport, Callao, whence a railway line

pierces the Andes and descends toward the boundless valley of the Amazon, are distant but 1,600 miles from Panama.

It takes the Columbian line steamers but six days to carry the United States mails, freights, and passengers from all the States east of the Rockies from New York to Colon. In less than four days steamers could go from New Orleans to Colon.

Obviously the general trade interests of our country would seem to suggest the dispatching of the mails, freights, and passengers from the Eastern States, as at present, by the Columbian line from New York to Colon, and the mails, etc., from the North, West, and South via New Orleans. This change would greatly improve communication with these South American countries and vastly benefit our general trade.

San Francisco mails are carried by rail to New Orleans in less than five days. As steamships can go from New Orleans to Colon in less than four days, it follows that San Francisco fast mails could be conveyed that way to Panama in nine days. It now takes the San Francisco mails twenty-two days to reach Panama by the Pacific Mail steamers.

The following table of distances will best illustrate the foregoing:

	Miles.
Callao to Colon	1,600
Colon to New Orleans	1,370
Total	2,970
Callao to Colon	1,600
Colon to New York	2,026
Total	3,626
Callao to Panama	1,560
Panama to San Francisco	3,000
Total	4,560
Callao to Colon	1,600
Colon to principal European ports	5,500
Total	7,100

The difference in favor of United States ports is seen at a glance.

With an enterprise worthy of imitation, some seventy European steamers ply regularly between European ports and Colon. Among these a Liverpool line has steamers which on their return trip stop at New Orleans to complete cargo, but which, on their way out, do not stop at New Orleans. The effect is obvious. New Orleans, the nearest American seaport—which is the natural outlet of the great valleys of the Missouri, the Mississippi, and the Ohio—is left undisturbed in its strange isolation from the South American countries on the Pacific Ocean.

Confining myself to Peru, in a brief reference to the unlimited resources of this coast, I will simply say that sugar-cane lands of Peru—not the best, as I have been reliably informed—give the enormous yield of 9,000 pounds of sugar per acre. The uncultivated areas capable of producing sugar cane

are limited only by the supply of water to irrigate them. Cotton, coffee, rice, etc., likewise offer the most tempting results. In minerals, petroleum, salts, etc., Peru has other immense undeveloped resources. When it is borne in mind that these riches are in a clime as mild and genial, the year round, as the famed climate of the Mediterranean coast of France, some idea can be formed of the value of the trade that this country offers to American industry and enterprise.

What should be done by the United States to acquire the trade of Peru and other countries on the Pacific coast of South America?

In my opinion, the first thing to be done is to practically demonstrate to these countries the advantages of close commercial intercourse with their North American neighbors by giving them easy and cheap transportation. The present means of communication with the United States are:

(1) The three steamships of the Columbian line, making three trips per month from New York to Colon, carrying the United States mails, and covering a distance of 2,026 miles in six days.

(2) The six Pacific Mail line steamships plying between San Francisco and Panama, and covering a distance of 3,000 miles in twenty-two days.

(3) The line of steamers sailing from New York around Cape Horn, lately established by the firm of W. R. Grace & Co., of New York. This line seems already to be meeting with the success which such an enterprise in the interest of the extension of American trade so eminently deserves.

These are all that I know of.

Now, to convey the mails, freights, passengers, etc., coming to Panama and bound for the South American Pacific coast, there are a line of British steamships and a line flying the Chilean flag, plying between Panama and Valparaiso and intermediate ports, which cover the distance of 1,600 miles between Callao and Panama in from eight to nine days.

Thus it will be perceived that, with delays in connections, it takes from seventeen to twenty days to make the entire voyage of only 3,600 miles between New York and Callao, a distance which the transatlantic steamers plying between New York and European ports make in six or seven days.

It is plain, therefore, that present conditions are unfavorable to the development of trade between these countries and the United States.

The European liners navigating between Colon and European ports take about nineteen days to make the voyage across the Atlantic. It is easy to see how travel from these countries could be induced to traverse the United States, and in passing see much to induce the change of trade relations.

It is obvious, too, that American lines of fast steamships should be established for the Pacific coast to make closer connections at Panama.

The trimonthly service of the Columbian line from New York to Colon should be extended to a weekly service, and, for the benefit of the great central region of the United States, another weekly service should be established from New Orleans, timed to make arrivals at Colon in the intervals of the New York steamers.

The near future promises new avenues of communication which deserve consideration. Already steamers run between New Orleans and Bocas del Toro, Colombia, a point only 100 miles distant from Colon. It would be an easy matter to contract with these steamers to extend their trips to Colon.

It is to be considered that from New Orleans mails and passengers could be conveyed by rail to Washington in thirty-six hours, to New York in forty hours, to Chicago in thirty hours, and to San Francisco in less than five days.

At Guaymas, the Mexican port on the Gulf of California, rail communication already exists with the railway system of the United States. It is also stated that a railway will soon be completed between Mexico city and Acapulco, and another to Salina Cruz, a port considerably farther south than Acapulco.

The railway between Port Limon and Punta Arenas, in Costa Rica, is also in process of completion. This line will offer another route across the Isthmus, terminating at a point about as near to the South Pacific ports as Panama. It is not amiss here to observe that a steamship line between New Orleans and Port Limon has been in successful operation for some years.

Hon. James A. McKenzie, United States minister at Lima, has been in Peru for nearly a year. During this time, in his general intercourse, he has observed the existence in Peru of a most friendly feeling toward the United States, and a widespread desire to have established close personal and commercial relations with our people and country. He is convinced that any movement toward these ends from our Government or from our commercial bodies or syndicates would meet with hearty responses and coöperation in Peru. I am greatly indebted to him for data and information, and, in the frequent consultations which I have had with him on this subject, I am gratified to state that he has expressed his entire concurrence in the views I have the honor herein to submit to the Department.

LEON JASTREMSKI,
Consul.

CALLAO, *February 28, 1894.*

AMERICAN COAL IN BRITISH GUIANA.

As there have been recently shipped to this port from Baltimore several cargoes of coal which proved satisfactory, and as there seems to be a movement toward the introduction of American coal here, I submit to the Department a copy of a statement in reference to the relative merits of English and American coal, kindly furnished to this consulate by the Sproston Dock and Foundry Company, the largest consumers of coal in this colony:

In August of last year we imported a cargo of anthracite coal from America at a cost of $5.10 (cost and insurance, $3.05; freight, $2.05). Welsh coal at that time was selling at $3.36 and freights were about $2.64. For steamer purposes we prefer the Welsh, even at the

enhanced price, but I am bound to admit that the American is a cleaner, harder, and better storing coal, and I should think well adapted for estates purposes. It is very similar to what is known in England as West Hartley hard steam coal, and I should imagine, taking one year with another, could be landed here at a considerable less price than the English production.

Yours faithfully,

FREDERICK WHITE,
Of the Sproston Dock and Foundry Company.

There are about eighty sugar estates and several factories that are using coal imported from England, which, it is thought, might, with a little effort, be diverted therefrom, to the advantage of the producers of the United States.

JAMES SPAIGHT,
Vice-Consul.

DEMERARA, *March 7, 1894.*

PACKING GOODS FOR SOUTH AFRICA.

I transmit herewith reports, in answer to the packing circular, from the consular agents at Bloemfontein, East London, Johannesberg, Kimberley, and Port Elizabeth. The consular agent at Durban having transmitted his report direct,* it only remains for me to add such information as I have been able to secure relative to packing goods for this consulate (Cape Town).

CAPE TOWN.

En route from the United States.—Goods reach this port by steamers and sailing vessels, principally by steamers, direct from New York.

Landing.—Goods are landed at wharves in dock.

Warehousing.—Warehouses are provided.

En route to the interior.—Most goods go from here to the interior by rail, none at all by team. The railway handling is as good as in the United States. As to size of packages, anything that can be handled at New York can be handled at Cape Town. Goods destined upcountry are dealt with in the reports of the agents.

Outside packages.—Packages should be made of three-fourths to one inch wood cases and lined with waterproof paper. Shippers here complain that the tin cases in which paraffin oil is shipped are too thin; heavier tin should be used, or iron casks, as suggested by our agent at Kimberley, Mr. Williams, whose opinion in such matters is entitled to great consideration. I confine my report to "packing" only, but beg to add, as a suggestion, that shippers follow the tariff question closely, as many articles shipped here from the United States have a duty imposed upon them.

As regards the several classes of goods, I can add nothing to the suggestions of the several consular agents, except that in the case of furniture it

* Published in No. 160 ("Packing Goods for Export"), p. 215.

would pay shippers to pack in pieces and send a man to set it up here. American boots and shoes are growing in favor here.

Duties.—Customs duties are charged on packages, but in lieu of other charges 5 per cent is added to prime cost of goods, on both of which duty is collected.

C. H. BENÈDICT,
Consul.

CAPE TOWN, *November 28, 1893.*

BLOEMFONTEIN.

The way in which American goods are packed for export to this country leaves very little room for improvement. It seems that every American manufacturer or exporter takes special care, as well as pride, in getting his goods landed at the place of destination in good condition.

Goods from the United States for the Orange Free State are landed either at Port Elizabeth or East London. From these ports they are brought on by rail to the station nearest their destination. It must be understood that a line of railroad is running straight through the Orange Free State. When, therefore, goods arrive at any of the stations, they are further transported by ox wagons to their destination. Such wagons can load 8,000 pounds weight. It is desirable, however, for the sake of convenience in loading, that no case or package should exceed a weight of 500 pounds if possible, as cranes are not in use everywhere. Besides, in wet weather or on rough roads, of which we have only too many, these wagons often break down, and in order to right them again, they must be unloaded, which is not easily done when the packages are too large and only two or three persons at hand.

All goods should be packed in boxes, and in case of soft goods the boxes should be lined with tin, so as to prevent damage en route in case of rain.

Goods are landed from vessels at the coast ports by the aid of large lighters, and during bad weather the handling is extremely rough.

Suitable warehouses are provided at all colonial ports for the storage of perishable goods.

It is absolutely necessary that all packages, cases, bales, etc., should be waterproof, as they are always liable to be drenched by sea water when being landed. Dry goods should be packed in stout, tin-lined cases, say from 40 to 50 inches square, with corners and edges hooped. Groceries, in stout cases with corners and edges hooped, and when full should not weigh more than about 200 pounds. Liquids, in stout cases containing not more than 4 dozen quart or 6 dozen pint bottles, and with corners and edges hooped. Iron manufactures, when practicable, should be packed in strong barrels in preference to crates, the latter being liable to breakage in the rough handling necessary; stout cases, however, would be still better. Solid deals should be sent loose; cut deals should have their sawed ends secured with hoop iron. Flooring

and ceiling boards should be made into packages not exceeding a weight of 150 pounds, and secured with iron hoops or bands. Corrugated iron should be sent in bundles of, say, ten sheets each, and these should be secured with stout hoop-iron bands. Paraffin tins should not be too thin, as they are liable to leak through rough usage. Each case should contain one 10-gallon or two 5-gallon tins, with screw top; other oils in iron drums containing 1 and 2 gallons each, packed in strong cases. Dry paints, in one-gallon drums and 2 or 3 pound jars or tins in strong cases; wet paints, in one-gallon drums. White and red lead, dry and wet, in 7-pound iron drums packed in strong cases.

ERNST R. LANDGRAF,
Consular Agent.

BLOEMFONTEIN, *November 28, 1893.*

EAST LONDON.

En route from the United States.—Goods reach here by steamers and sailing vessels.

Landing.—As a rule they are landed at the wharf by the carrying vessel, but sometimes they are discharged by lighters.

Warehousing.—Warehouses are provided.

En route to the interior.—Most goods are sent to the interior by rail, others by wagons holding 4 tons, drawn by sixteen oxen.

Outside packages.—Ordinary packing for a sea voyage will do. With fine goods of value the cases should be tin-lined.

Duties.—With most goods the cost of packing is added to the value for customs purposes, and an ad valorem duty of 12 per cent is charged.

W. H. FULLER,
Consular Agent.

EAST LONDON, *November, 1893.*

JOHANNESBERG.

Outside packages.—All classes of dry goods are usually packed in what is known as waterproof paper—that is, very thick paper mounted on cotton cloth, which is, to a certain extent, impervious to water. This paper is used to line the boxes in which the goods are packed. Boots and shoes are packed in boxes lined with tarred sackcloth, known as tarpaulin. There are no particular specifications as to the quantity of goods packed in a box; that is usually left to the discretion of the exporter.

All cigars, cigarettes, etc., are packed in tin-lined boxes. Canned meats should be packed in stronger boxes than those used at present, as there is great complaint among merchants as to loss from this class of goods being poorly packed. Lubricating and illuminating oils should be packed in cases

holding either ten 1-gallon tins or two 5-gallon tins; sulphuric acid, in 2-gallon earthenware jars, with screw stoppers, packed in whiting (chalk), or in 200-pound lead-lined iron drums; nitric and hydrochloric acid, in 2-gallon earthenware jars, packed in whiting; quicksilver, in 50, 75, and 100-pound iron flasks. Mine cars should be slightly wider at the top than at the bottom, so that they will fit into each other to save space, lessening the cost of freight. All heavy machinery is usually shipped loose, protecting the parts likely to be damaged. Cast agricultural implements, carts, wheelbarrows, etc., should be packed as strongly and closely as possible. All cheap furniture should be knocked down; flooring and all dressed lumber, six to twelve boards strapped together with iron bands; this class of lumber should never be shipped loose. No dynamite or powder or ammunition is allowed to be imported into the South African Republic without first obtaining a permit from the Government. Dynamite is packed in 50-pound boxes. Detonators are packed in tin boxes containing one hundred each; a case holds 250 boxes. Powder is packed in iron drums.

W. W. VAN NESS, JR.,
Consular Agent.

JOHANNESBERG, *November 20, 1893.*

KIMBERLEY.

En route from the United States.—American goods reach here in sailing vessels or steamers direct from New York to Alagoa Bay, and thence by rail to this place.

Landing.—Goods are landed at Port Elizabeth by lighter from the ship to the jetty.

Warehousing.—For damageable goods warehouses are provided, but goods are often shipped at once to destination.

En route to the interior.—Goods reach here by rail, and are handled with care by the railway people.

Outside packages.—The outside covering depends upon the value of the goods, which should be packed in such a manner as is customary for long sea voyages.

Duties.—Custom duties are the same as at Cape Town, and I would refer to Consul Benedict's report for information under this head. I might add that all mining machinery, agricultural implements, and all tramway material, rails, trucks, etc., are duty free.

The importation of lumber from Puget Sound has been revived, the first cargo for many years having been imported by myself for the De Beers Company. Two cargoes are now on the water, one for Johannesberg and one for ourselves. Owing to the scarcity of lard oil at Port Elizabeth and the consequent high prices, I have under order 2,500 cases, which are coming by steamer from New York. I mention this fact in order to draw attention to the method of packing both lard and coal oils, *i. e.*, in the

ordinary 5-gallon tins, two tins being packed in a case. There is considerable loss by leakage, and some better method should be adopted. For our own use, iron tanks, containing 300 to 400 gallons, would be most advantageous, as the tanks can be used for catching or holding rain water.

G. F. WILLIAMS,
Consular Agent.

KIMBERLEY, *November, 1893.*

PORT ELIZABETH.

En route from the United States.—Goods are shipped from the United States direct to Port Elizabeth either by steamer or sailing vessel, and are not supposed to be subject to any handling between ports.

Landing.—Goods shipped by sailing vessels are generally discharged much more slowly than goods from steamers, and are consequently landed in better order. Goods from all steamers, and with few exceptions from sailing vessels, are discharged from the anchorage in the roadstead into lighters, which are then brought alongside the jetties and the goods discharged by means of cranes into harbor board railway trucks and taken to the warehouses or depositing ground belonging to the harbor board, from whence they are delivered to the merchants' stores or reloaded into railway trucks for transport upcountry. Occasionally ships under 600 tons come alongside the north jetty, and the cargo is then discharged direct into the harbor board trucks. I may mention that the north jetty is now being lengthened considerably, and when this extension is completed, which it is hoped will be in the course of four months, it is expected that all sailing vessels and fair-sized steamers will be enabled to come alongside.

Warehousing.—Warehouses are provided for all classes of goods except timber, iron, machinery, coal, and other imperishable goods, which are stored in the open on the harbor board depositing ground.

En route to the interior.—Goods are sent to the interior chiefly by the Cape Government railways, which are now connected with the principal towns in the colony. The railways have also been extended through the Orange Free State and the South African Republic to Johannesberg, the center of the gold-mining industry, and also to Pretoria, the capital of the latter state. Goods are thus not subjected to any handling en route. Ox wagons are employed to take goods from here to places at a distance from the line of railway, and in some cases are able to compete with the railway, and carry goods at lower rates.

Goods sent by ox wagon are, as a rule, delivered in better order than goods sent by rail.

Outside packages.—With regard to the best material for outside packing, I have consulted several of the leading merchants here, and they state that the class of covering is wholly dependent on the nature of the contents of packages. They inform me, however, that the goods received from the United States are generally so packed as to meet with entire approval. The

only complaint I have heard is about paraffin tins, which are said to be somewhat too thin.

Duties.—The customs law provides that duty is to be paid upon outside packages, and this is carried out in all cases when the packing is charged for on the invoices; but in the case of rated articles, such as pickles, sauces, preserves, potted meats, or fish, the tins or bottles are not charged for. One or two samples are opened, the contents weighed or measured, and duty charged accordingly. In the case of sugars, one pound is allowed for weight of bag. It may be laid down as a general rule that in the case of articles which are charged with the 12 per cent ad valorem duty the outside packages, when shown in the invoice, are also charged with duty.

JOHN A. CHABAUD,
Consular Agent.

PORT ELIZABETH, *November, 1893.*

SICILIAN ESSENTIAL OILS.

The following article appeared in the last number of the British and Foreign Confectioner:

We have from time to time urged the need of special care in the purchase of essential oils. Recently our attention has been specially directed to the same class of goods by the publication of a most valuable contribution to our knowledge of the chemical and physical properties of the essential oils. We refer to the Pharmacological Record, in which a detailed account of recent researches on Calabrian and Sicilian essences is given by H. Helbing and T. W. Passmore, who are the best authorities on this question. They say:

"The value of the essential oils of the orange family depends so entirely upon their delicacy of flavor and odor that the services of the chemist have, up to the present, only been rarely sought in determining the nature and proportion of the several constituents, except in cases of gross adulteration. Yet it is acknowledged that no class of oils is more subject to sophistication and admixture than the Calabrian and Sicilian essences, and to such an extent is adulteration carried out that the greatest precautions have been necessary in determining the characteristics and composition of the genuine products. The great amount of attention that has been paid of late years to the chemistry of the essential oils has, however, not only supplied these necessary factors, but furnished tests and methods of analysis that render the control of these oils a comparatively easy task to experts."

This brochure deserves the most careful study by those who wish to understand freely the question of the purity of genuine essential oils and the conditions of preparation best suited to the requirements of this trade. We must refer those who wish for full details to the actual work recorded, but the general bearing of the work is of such importance, quite apart from its commercial aspect, that we venture to call attention to some few of its more salient points. Messrs. Helbing and Passmore have marked out in detail a most interesting series of experiments dealing with the constitution of certain pure samples of expressed essential oils, such as lemon, sweet orange, tangerine, and bergamot.

"The close botanical relationship of the sources of these natural products also finds expression in their composition. The terpene hydrocarbon, limonene, is characteristic of this class of oils, and in most cases is the principal constituent. Pinene and dipentene are also generally present, but in small quantities. Limonene is distinguished by its boiling point—175° to 176° C. As the boiling point of limonene is considerably affected by the presence of

other bodies, it is almost impossible to obtain it in an absolutely pure state by simple fractional distillation, because traces of other volatile substances are always carried over with it. It is, however, obtained sufficiently pure to admit of its recognition by its specific gravity—0.846 at 20° C. The limonene of lemon oil and its allies is dextrorotatory toward polarized light, and communicates this character to the oils. Although the terpenes possess more or less pronounced pleasant aromatic odors, the peculiar odor of each oil is due to some other constituent, such as citral in lemon and tangerine oils, which, though present only in small quantities, can be recognized by chemical tests. All the oils also contain a small quantity of a stearoptene or solid body, which crystallizes and is generally free from odor, though possessing a pungent taste."

Avoiding abstruse chemical details, we may point out the general methods adopted in these experiments and the results obtained and then very briefly indicate some inferences that may be drawn from the data obtained. The method of investigation which has been chiefly followed has been an application of the process known to chemists as "fractional distillation." This phrase may not convey a very coherent notion, but it implies, broadly, the separation of the oil, by the application of heat at carefully regulated temperatures, into those numerous distinct bodies which have been produced in nature's wondrous laboratory. These, when united, form those bodies known in commerce as essential oils. So far as present investigations show, certain bodies of paramount importance in determining the flavor and odor of the several oils possess relatively high boiling or distillation points. This being so, there is, in many cases, a risk either of decomposition when the oils are prepared by distillation, or, what amounts practically to the same thing, there is a great risk that certain important constituents may be left behind in the still, and may not find their way at all into the oil of commerce when it is prepared by this method.

The first risk was found to occur specially in the case of the bergamot and tangerine oils, and in the former another special risk was noted, caused by the production of a very considerable percentage of acetic acid during the process of distillation, which fully accounts for the production of the peculiar green tint usually considered as characteristic of bergamot oil, but which it would now seem is almost wholly derived from the action of the acetic acid upon the copper storage vessels employed for the exportation of this oil. Wherefore those who use ordinary bergamot oil need not wonder at copper contamination being detected by inquisitive analysts. The last-mentioned risk, that of removal by retention in the still of important flavor and odor giving constituents of the oil, was found to apply specially to oil of lemon; while, in this case, actual decomposition was hardly observable. Now, it seems to us that the most reasonable inference to be drawn from above—which the net result of this research is a very concentrated form indeed*—is simply this: If you want to get in the fullest degree the perfect flavor and odor of essential oils, see that you get them, and do not grumble at the price; they are worth paying for, and you get full value for your money. The investigation also clearly illustrates the advantages of expression over distillation in the case of oils which possess such a delicate nature as Sicilian and Calabrian essences. In the case of bergamot and tangerine oils, the unavoidable decomposition of a characteristic constituent by heat and the formation of free acid must not only affect the flavor but also the stability of the oil, while, although lemon oil suffers no actual decomposition as far as could be observed, there is a tendency to leave the citral in the residual products of distillation.

After reading this, it occurred to me that the subject warranted an attempt on my part to either verify or disprove the statements of Messrs. Helbing and Passmore. It was my original intention personally to visit several of the laboratories, but it took me only a very few minutes to realize that what has taxed the ability of the best European chemists for years—the detection of adulteration in essences—could not be accomplished in one visit by the veriest tyro in the chemist's art.

* As printed in the Confectioner.

I then concluded that the best course that, as a layman, I could pursue would be to secure the expressions of the merchants themselves, over their own signatures. To that end I addressed the following circular letter to all the manufacturers and shippers of essences in Messina:

UNITED STATES CONSULATE,
Messina, January 8, 1894.

GENTLEMEN: I am now preparing a report to the Department of State on "Essential Oils," and in order that it may not be lacking in accuracy, whereby injustice might be unintentionally wrought, I prefer to have your coöperation, to which end I will be thankful if you will furnish me with replies to the following questions:

(1) Are there manufactured in and exported from Messina any absolutely pure essential oils of lemon, orange, bergamot, mandarin, or bitter orange?

(2) What is the lowest price (in gold) at which absolutely pure essential oils (state the kind) can be exported to the United States?

(3) To what countries are the best grades of essential oils exported? If the grades exported to the United States are superior to those exported to other countries, please state the cause?

(4) In the adulteration of essential oils, what are the adulterants?

(5) If you have any brands which you will guaranty as being free from any adulterations whatsoever, will you please specify them (giving name of oil) and state if these brands are exported to the United States; and if not, to which countries they are exported?

(6) Will you please furnish me with a list of all your brands?

In propounding the above questions I trust they will be accepted in the spirit that is intended. I have no desire to pry into the "secrets of the workshop," but am only anxious to mete out an even measure of justice to you and to my countrymen, and I deem this method the most expedient toward the accomplishment of that end.

Thanking you for a reply at your earliest convenience, I am, etc.,

CHARLES M. CAUGHY,
U. S. Consul.

The following replies have been received in English* (all of the Italian houses having English corresponding clerks), except that of Fratelli De Pasquale, of which I send a correct translation:

FROM FERD. BALLER & CO.

We have your favor of the 8th instant, and take pleasure in answering your questions in the order they are put.

(1) Yes; but oil of bergamot is produced only in the province of Reggio, Calabria. We add, with regard to oil of bitter orange, there is always a doubt as to its purity, manufacturers sometimes mixing it before it comes in the market.

(2) To-day's lowest prices per English pound, free on board at Messina in 25-pound jars (copper) are for January shipment: Oil of bergamot, 7*s.* 5*d.*; lemon, 4*s.*; sweet orange, 4*s.* 4*d.*; bitter orange, 7*s.* 2*d.*; mandarin, 19*s.* 7*d.*

(3) The best grades are exported to Paris, the United States, and Cologne (Germany).

(4) Principally rectified spirits of turpentine.

(5) We guaranty our oils of bergamot, lemon, and sweet orange as being free from any adulteration, and we are shipping them to the United States.

(6) We refer to No. 5.

* Originals filed in consulate.

FROM W. SANDERSON & SONS.

We beg to reply to the best of our capacity to the queries put to us in your favor of the 8th instant, and we apologize for the delay in answering, which has been caused by want of time.

(1) We hardly believe that any of the five essential oils named are sold absolutely pure by the first producers, as a general rule, excepting small quantities, which are made under special supervision of purchasers. Lemon and orange are the essences which can be the least adulterated without detection. Bergamot, bitter orange, and mandarin are easier to adulterate, and require greater knowledge and sense of smell to understand what extraneous ingredients are mixed with them.

(2) It being difficult to state that an essence is absolutely pure, one can only consider as pure those which may be so slightly adulterated as to escape detection by experts in the article, and what the prices quoted in the local market reports are for such oils.

(3) The United States take the largest quantities of essential oils in the purest state, other countries also taking their share, but still large quantities of adulterated essences go to America and elsewhere, for cheapness is a great inducement to parties who have little knowledge of qualities.

(4) Usual adulterants are: For bergamot, turpentine, essence of lemon and orange (when their value is lower than bergamot, which is usually the case), and distilled oil which is obtained from the dregs of essences; for lemon and sweet orange, principally turpentine, and also distilled oils; for bitter orange and mandarin, usually sweet orange.

(5 and 6) Our oils are known as "Sanderson's," and are oil of bergamot, lemon, sweet orange, and bitter orange, and are, to the best of our experience, the purest obtainable, and are well known in the United States.

FROM SANTI DE PASQUALE & FIGLI.

Owing to the absence of our senior, we can only now reply to your esteemed favor of the 8th instant.

The following is in answer to your questions:

(1) The essences of lemon, sweet and bitter orange, and mandarin are manufactured in the province of Messina, and from this place they are usually exported in adulterated condition, with rare exception. The essence of bergamot is produced in Calabria, but the owners sell it to Messina shippers, who export the same in the condition above stated.

(2) The prices in gold of the above essences are to-day, per English pound, free on board at Messina: Lemon, 4*s.* 3*d.*; sweet orange, 4*s.* 9*d.*; bitter orange, 6*s.* 7*d.*; bergamot, 7*s.* 2*d.*; mandarin, 12*s.* 9*d.*

(3) The best essences are exported to Paris and Grasse; there are also many houses in Germany and England which import the same. For some time said oils have been likewise exported to the United States, where the quality has been well appreciated.

(4) Turpentine is the adulterant in essential oils.

(5) Some years ago, in order to cope with the competition, we shipped adulterated essences; but, having carefully studied the wants of the different places abroad, in our sundry voyages, we gave up that system, and for two years have been shipping essences absolutely pure.

We export only one quality—the pure—which we guaranty free from any adulteration whatever.

We ship the same in the name of the Sicilian Essential Oil Company, which we chiefly sell in the United States.

We place ourselves at your disposal for any further information that you may require.

FROM JOHN SOFIO & CO.

We crave your kind indulgence for not replying sooner to your welcome note of the 8th instant, the delay arising from want of time on our part. We now beg to state:

(1) You ask whether "absolutely pure essential oils are manufactured in and exported from Messina." Allow us to remark that the question is rather strange, for although there are here (as we suppose there are in all parts of the globe) unscrupulous people who adulterate the goods in manufacturing, and in exporting them, we can not admit that there are no pure oils made and shipped genuinely.

(2) The prices, per English pound (packed and free on board at Messina) for real pure essences at the present time, should be about $1 for lemon, $1.15 for orange, and $1.50 for bergamot.

(3) Pure essences, as well as adulterated, go to all parts of the world. At one time the purest were forwarded to the United States, but since adulterators of oils have found their way to the United States, and while, unfortunately, most of the American dealers (who seem unable to distinguish the pure from the adulterated) look chiefly to price, we may promptly venture to say that nowadays the largest quantity of essences going there is absolutely a mixture of essential with turpentine oils. We believe, in fact, that the exception may be applied to very few old-established houses who would never think of adulterating their oils. These few parties do not sell unless at figures which may seem high in comparison with the prices of adulterators, but are in reality the cheapest if it is considered that their oils are free from spurious substances.

(4) The adulterants are notoriously oil of turpentine and mineral oils.

(5) We can not answer the fifth question you lay before us, it being contrary to our delicacy to do so.

(6) It would be difficult to make out a list of all the exporters of essences, there being nowadays an infinite number of jobbers and unscrupulous newcomers, who, through illusive and mendacious advertisements, endeavor to deceive the people abroad. If, at any time, you would be pleased to visit our own factory of essences, we should be pleased to give you evidence of the manufacturing of pure qualities.

FROM A. GRILL & CO.

In reply to your esteemed favor of the 8th instant, we have much pleasure in giving you the following particulars regarding the shipment of essences from Messina:

(1) Certainly, absolutely pure essential oils of lemon, orange, bergamot, mandarin, and bitter orange are manufactured in and exported from Messina.

(2) The lowest prices in gold at which we can export absolutely pure oils to the United States are as follows, per pound free on board at Messina: Lemon, 3*s.* 10*d.*; orange, 4*s.* 5*d.*; bergamot, 7*s.* 6*d*; bitter orange, 4*s.* 6*d.*; mandarin, 14*s.* 2*d.*

(3) The best grades of oils are exported to France and Germany. The grades exported to the United States are inferior in quality to those of France and Germany, for the simple reason that only much lower prices are obtainable. We are entitled to suppose that American buyers never saw absolutely pure essences, for the reason that the essence trade with the United States, owing to the low prices which the buyers are disposed to pay, is in the hands of shippers who send inferior qualities.

(4) In the adulteration of essential oils the adulterants are turpentine oil and other mineral oils.

(5) We will guaranty our brands of lemon, orange, bergamot, mandarin, and bitter orange to be absolutely free from any adulterants whatsoever. These brands are not exported to the United States for the reasons given above (see clause 3). Besides, it is now very easy to distinguish pure essences from adulterated ones, say through Wild's polaristrobometer.

(6) The following is a list of all our brands: Lemon oil, orange oil, bergamot oil, bitter orange oil, mandarin oil, and neroli oil.

FROM ARTHUR A. BARRETT.

I have your letter of the 8th instant, and am glad to have the opportunity of coöperating with you on the essential-oil trade of Messina. Replying seriatim to the list of questions you have favored me with—

(1) Pure essential oils are made and can be had in any quantity in Messina and neighborhood, and adulteration is carried on principally by the exporters.

(2) The price at which absolutely pure essential oils can be exported to the United States depends entirely on the demand which may exist at the moment from abroad, and to-day's price for pure essence is absolutely no guide whatever to what the price may be in a few weeks' time. As evidence of this fact, I may say that the price of genuine essence of lemon this year is exactly one-half of what it was at the same date last year. The actual value at the present moment is as follows: Pure essence of lemon, 4*s.* 6*d.*; pure essence of sweet orange, 4*s.* 9*d.* to 5*s.*; pure essence of bitter orange, 12*s.*; pure essence of mandarin, 40*s.*; pure essence of bergamot, 9*s.* 6*d.*

(3) Speaking generally, the average quality exported to France is better than that exported to any other country, French perfumers being generally willing to pay a fair price, and, in addition to that, are better judges of the article. A refiner of turpentine in a large way of business here in Messina, recommends the addition of 5 per cent of his refined turpentine for Paris, 10 per cent for Grasse, 25 per cent for London, 30 per cent for Marseilles, and 15 to 20 per cent for New York.

It is a general rule that cold countries actually prefer an essence that is largely adulterated, and it is an undoubted fact that adulterated essences have even taken prizes at exhibitions in preference to pure essences exhibited at the same time. I account for this by the well-known fact that the odor of nearly all perfumes in a concentrated form is not agreeable, but becomes so on dilution. Thus essence of lemon diluted with a nearly odorless turpentine has a pleasanter smell than the genuine article. In the same way a bouquet formed of a mixture of essence of bergamot, with essence of orange and lemon, is decidedly pleasanter than pure bergamot by itself.

(4) The principal adulterants are as follows: For essence of lemon, French turpentine mixed with essence of sweet orange. Essence of sweet orange is adulterated with turpentine, seldom less than 25 per cent and generally over 50 per cent.

The finest essence of orange goes to Germany, which is the largest consumer of the article.

Essence of bitter orange and essence of mandarin are adulterated almost solely with essence of sweet orange, of which they often contain 75 per cent. Essence of bergamot is more adulterated than any other essence, and the following adulterants are in common use: Essence of lemon, essence of sweet orange, turpentine, mineral oil, resin, pitch, and essence of peppermint. Of these, the most largely used are lemon and sweet orange. Essence of peppermint is, of course, only added in small amount, and pitch is used as a coloring matter. Stearin in the form of candles is also introduced occasionally, and increases the bulk and weight without affecting the odor.

(5) As I am an exporter myself, I am deterred by modesty from pointing out any brands which are absolutely genuine. I may say, however, that previous to my commencing business in Messina, I was engaged in the essence business in England, where I used large quantities of essence for the manufacture of my speciality—"Concentrated Oil of Lemon." Being quite unable to get pure essence there, I thought the prospects of business sufficiently good to induce me to emigrate here, and I am now one of the largest exporters for the English market.

(6) The best essence I sell I call pure essence, without qualifying adjectives of any sort. Many of the mixing firms, after using up all the adjectives implying purity and superiority, are now in great difficulty to find some word descriptive of genuine essence, for which there is now a growing demand, and I myself prefer to adopt the word "pure" in conjunction with

my own name (Arthur A. Barrett), which I always write in full to distinguish myself from other dealers with the same surname. Consumers wishing to obtain pure essences of good quality (this is quite as important as purity) should put themselves in the hands of a respectable firm and pay a proper price. In particular, they should avoid those firms who offer to send essences for payment after approval of quality. It is quite impossible to ship anything but the very worst kinds on these terms.

FROM HEINR. KLOTH.

I have much pleasure in answering the questions put to me in your esteemed favor of the 8th instant:

(1) My I^aI^a "Zest" quality of essence of lemon, bergamot, orange, etc., is manufactured under control in my own establishments, and is exported pure to all parts, but I am told that among fifty shippers only eight or ten send out essence absolutely pure.

(2) My quotations for said "Zest" quality are at present per kilogram (2.205 pounds) in copper jars of 6, 12½, 25, and 50 kilograms, including packing, cost, freight, and insurance to New York: Essence of lemon, $2.40; essence of orange, $2.55; essence of bergamot, $4.40; essence of mandarin, $10.70; essence of bitter orange, $3.80.

(3) I hear that of late Paris and Grasse (France) and Leipsic and Cologne (Germany) buy the best essences and pay the highest prices. In the latter country essences are examined by Abbe's refractometer (which I have in my laboratory) and by other instruments. Some countries, the United States included, will not pay high prices, and a number of shippers supply them with adulterated essences.

(4) It is said that many shippers adulterate essences of lemon and orange with oil of turpentine and "olio de colza," and that essence of bergamot is adulterated by common essence of lemon and orange.

(5) My registered trade mark is "Marca Sicilia" and my said "Zest" quality of all oils mentioned is, as indicated before, absolutely pure. Same is exported to the United States, Germany, England, Sweden, Norway, the Netherlands, etc.

(6) I have only the brand "Marca Sicilia" and (*a*) I^aI^a "Zest" quality manufactured by myself, and (*b*) "I^a quality," bought up; for this latter I can not therefore guaranty absolute purity.

I shall be pleased to give you any other information you may desire.

FROM CAILLER WALKER & CO.

In reply to your letter of the 8th instant, we beg to say that for many years we have not shipped essences to the United States, because we could not obtain our prices for our pure essences, as a lot of small shippers inundated the American market with cheap essences, which probably were more or less adulterated.

Regarding the other questions to which you have requested a reply, we can say:

(1) From Messina a great deal of pure essence is shipped, but we doubt if any goes to the United States.

(2) The prices ruling to-day (per pound, cost and freight to New York) for real pure essence of lemon is $1.20; essence of bergamot, $2.15; essence of sweet orange, $1.35; essence of bitter orange, $1.50. It must be borne well in mind that this year prices are exceptionally low, and it is not worth the while to adulterate oils. Last year prices were nearly double, and two years ago they were three times the present value.

(3) The only way to have pure essence is to pay the full value and to intrust the orders to old, well-known, respectable firms, who are well placed in the districts where the best essences are produced and have competent purchasers. So far, in the United States, it has generally been the habit of buyers to stick principally to cheap prices.

(4) It is generally known that essence is adulterated with oil of turpentine and mineral colza oil, and we are not aware of any other way.

(5) The real pure essence we can guaranty as free from any adulteration. It is made under our strict supervision, and rigorously corresponds to the requisites which modern science has found to distinguish the adulterated essence from the pure, which must be:

Essence of lemon:

Specific weight, 0.8587 15° C.
Opt. rotation, +62° 100 mm. tube.
Index of refraction, 1.476 20° C.

Essence of bergamot:

Specific weight, 0.8805 15° C.
Opt. rotation, +9° till 15° 100 mm. tube
Index of refraction, 1.4670 20° C.

Essence of orange:

Specific weight, 0.8498 15° C.
Opt. rotation, +96° 100 mm. tube.
Index of refraction, 1.474 20° C.

The above is the "super zest" quality, which we mark with a shield lying against an anchor, of which we inclose a facsimile.

This mark is very much appreciated in France and also in England and Germany, where they pay its value. We must make you observe that the essence industry is exercised by a lot of small manufacturers and farmers, from whom we purchase the essence, advancing them funds to buy the necessary fruits. The large works which several exporters boast of having, and the fancy pictures which are painted on show cards, exist only in the imagination of the advertisers, and are only what French call *reclamé*.

This is all we can conscientiously say regarding the essence business.

FROM GIOV. RESTUCCIA & CO.

Your esteemed favor of the 8th instant duly reached us, and we would say in reply to your questions contained therein that the best grades of essential oils are manufactured in the neighborhood of Messina, and we, as the oldest and largest manufacturers of the same, supply only the best qualities in all consuming markets. Our brand is well known, and particularly in America, on account of the particular purity and fragrance of our essential oils expressly prepared for flavoring purposes, so that no other inferior essence is shipped from us.

The more or less purity of the essence accrues only from the difference in price, it not being possible to send very fine goods at very ridiculous figures, and, willing or unwilling, the goods must be mixed up with turpentine. This sort of adulteration is imported from France, and most American firms are now well acquainted with such mixing. As said, we do not use such adulteration, our custom being to send off only the best grades of essence of our make, the same being purchased by all our numerous clients of Germany, France, America, Indies, Canada, Japan, Australia, and the United Kingdom.

FROM FRATELLI DE PASQUALE & CO.

We are duly in receipt of your valued favor of the 8th instant, and with pleasure we answer the different questions therein mentioned.

(1) We can say that there are manufactured in and exported from this town some absolutely pure essential oils of lemon, orange, bergamot, mandarin, and bitter orange, but not a large quantity, owing to the keen competition that often offers below the first cost and generally buyers abroad are very rarely willing to pay the right price. Moreover, it is a recognized fact that the majority of importers prefer an adulterated quality to a genuine one, for the simple reason that an essence mixed with an exact proportion of turpentine gives a stronger smell and keeps longer than a pure essential oil, particularly if the latter is not corked and light and air excluded.

(2) The lowest price (in gold) at which we can sell absolutely pure essential oils per English pound, free on board at Messina and all expense included and payment after arrival and approval of goods at buyer's store, is as follows: Lemon, $1.20; bergamot, $1.85; orange, $1.30; bitter orange, $1.85; mandarin, $5.

(3) The best grades of essential oils are shipped to Great Britain and colonies, mostly lemon and orange, used by the aërated water, cordial, confectionery, and perfumery trades. Next, we have to mention the French perfumers, who buy the finest bergamot oil, as they are more particular about quality than price. There is also Russia and the United States, where a large quantity of the finest essential oils are exported. In a word, we have to conclude that the best grades of essential oils are generally preferred by buyers who have to employ them in their own products, and not by buyers who have to resell to trade, as the latter prefer a low price rather than an extra fine quality.

(4) In the adulteration of essential oils the adulterant mostly used is turpentine, more or less purified and perfumed, which is not believed to be deleterious at all.

(5) We have some brands which we guaranty as being free from any adulteration whatsoever, viz, "Cedar," oil of lemon, meaning pure oil of lemon; "Rose," sweet orange oil, meaning pure oil of sweet orange; "Carob," bergamot, meaning pure oil of bergamot. We are glad to say that such oils were awarded the highest prize at the World's Columbian Exhibition, and that the warmest expressions of admiration and favor reach us daily from the trade, particularly from Great Britain, where said essential oils are extensively introduced.

There are now some prominent houses in the United States who appreciate the superiority of such absolutely pure essential oils, which are distinguished from others by their delicious aroma that recalls the fresh fruit.

However, as we see that some competitors of ours are offering their oils under our above-mentioned denominations, we have been compelled to make a new brand representing the "Port of Messina," which we are going to have registered to guaranty the trade against any spurious imitation. In fact, any absolutely pure oils shipped by us will bear henceforward said new label.

(6) The following are all our remaining brands, viz, "Super Oil Lemon," "Super Oil Bergamot," "Super Oil Sweet Orange," "Super Bitter Orange," and "Mandarin."

FROM IG. SILES.

Duly received in its time your esteemed letter of the 8th instant, in reply to which I beg to inform you that—

(1) Pure essential oils are exported to the United States, as also adulterated ones; this depending upon the respectability of the exporting firm.

(2) The prices of essential oils, like agricultural produce, being subject to variations, have no fixed value. The price can only be fixed on the day the business is transacted. For example, we quote to-day: Bergamot, 7*s.* per pound; lemon, 3*s.* 10*d.* per pound; sweet orange, 4*s.* 2*d.* per pound; bitter orange, 7*s.* per pound; mandarin, 24*s.* per pound.

(3) Pure essential oils are exported to all countries in the same way as adulterated oils, more or less according to the demand and also according to the knowledge of buyers. Pure essential oils find a larger market in France, Germany, and Holland, less in other countries, especially in England and America.

(4) The adulterants are various—(*a*) rectified essence of turpentine and other similar oils, (*b*) essential oils of the same kind that have an inferior value, (*c*) the essential oils which cost less, produced by distillation of the dregs.

(5) My essential oils are not known under a special brand. The brand is given by the importing firm, having the cases branded with its own initials.

My firm has for trade-mark a comet and the initials "I. S." I export only one quality—pure essential oils and nothing else, and refuse all orders for inferior qualities.

After reading thoroughly the foregoing replies, I sent one of the circular letters to Mr. Moore, of the firm of Ogston & Moore, celebrated chemists of London, who was sent to Messina by English importers for the special purpose of discovering all facts relative to the adulteration of essences. I append his reply:

In reference to your inquiry as to whether there is any method for the detection of turpentine in essences, until now there has been no reliable test, the difficulty in regard to essence of lemon being that it is of nearly the same specific gravity as turpentine, and also from the fact of their being nearly related to each other, inasmuch as they both belong to the family of terpenes.

Since our opening of a branch here, some eight months since, we have given the matter a great deal of attention. Through our being on the ground we have been able to obtain much information regarding the materials used for adulteration; also pure essences made under personal supervision for use in our investigations. We are now able to give analyses of essence of lemon and orange. In the future we shall carry on our experiments with bergamot and others. Your moving in this matter has caused a stir in the market already, and one firm has commenced to sell essences on analysis, and we take their samples ourselves from the coppers and afterwards seal them with our own seal. We may state that the principal merchants are anxious to sell on analysis in order that the pure material may realize its proper price. They have given us much valuable information, and under these favorable circumstances we have been able to devise tests that in future we can rely upon as giving accurate results.

It would very probably be deemed appropriate at this juncture to give a description of the manner in which essences are manufactured, but such an effort on my part would be simply a thrashing of old straw after the most admirable and comprehensive report upon that subject by Mr. Wallace S. Jones, our present consul-general at Rome, when he represented the Government at this port.* This article has found its way into every trade and chemical journal of prominence, not only in the United States, but in Europe.

The above correspondence (which embraces every manufacturer and exporter of prominence in Messina), varied as it is in both facts and figures, points to one conclusion at least, and that is, in the words of the Confectioner, "If you want to get in the fullest degree the perfect flavor and odor of essential oils, do not grumble at the price."

CHAS. M. CAUGHY,
Consul.

MESSINA, *February 10, 1894.*

*CONSULAR REPORTS, February, 1889, No. 102, p. 296. This number is now out of print.

NOTES.

Free Incubators in Venezuela.—Consul E. H. Plumacher, of Maracaibo, informs the Department, January 29, that, by direction of the president of the council, incubators will hereafter be admitted free of duty.

Duty on Oil Cake in Venezuela.—Consul E. H. Plumacher, of Maracaibo, under date of January 31, notifies the Department that oil cake has been placed in the second tariff class (2 cents per kilogram), by direction of the president of the council.

Import Duty of Salvador.—Consul A. L. Pollock, of San Salvador, under date of January 31, 1894, reports that an additional duty of 25 per cent (gold) per 100 pounds has been levied, by a decree of the President of Salvador, on all goods hereafter imported into Salvador. This includes all articles which were admitted free, with the exception of corn, rice, beans, and salt. The new tax is to be applied to the building of the railroad from La Union to San Miguel, and importers will receive stock in that enterprise to the amount of the additional duty they pay.

Changes in Norwegian Tariff.—Consul G. Gade, of Christiania, reports the alteration on February 6 of the Norwegian customs duties on malt and liquors, to go into effect at once, and continue until the end of the present fiscal year. It is estimated that the new rates of duty will add to the income of the Treasury $115,000. The old and new rates are shown in the following table:

Articles.	Unit.	Rates of duties.	
		Old rate.	New rate.
Liquors of all kinds:		*Cents.*	*Cents.*
In bottles or jugs, without regard to the strength of alcohol	Liter	42.88	50.92
In other packages, calculated at 100 per cent alcoholic strength	do	45.82	54.4
Malt of all kinds	Kilogram	6.3	7.77

Orange and Lemon Crop of Palermo.—Consul W. H. Seymour, of Palermo, reports, on January 31, that this year's crop of oranges and lemons is unusually large and the price low, oranges selling for about $2 per thousand and the best lemons at about $3. An agreement has been made between the fruit-shippers and a steamship company by which the latter is to receive all the patronage of the former, the object being not to flood the market, but to supply the demand as nearly as possible.

Bucaramanquina.—Under date of December 1, 1892, Consul-General Coughlin, of Bogotá, transmitted to the Department two samples of fossil resin, together with a report thereon (see CONSULAR REPORTS, No. 152, May, 1893, page 48). The samples were turned over to the Department of Agriculture for analysis. On January 15, 1894, the analysis was received, with the following letter:

DEPARTMENT OF AGRICULTURE,
Washington, January 11, 1894.

The Honorable the Secretary of State.

SIR: A communication by your predecessor, dated February 9, 1893, accompanied a sample of natural or fossil resin, which he asked to have analyzed and reported to the Department. The analysis of this fossil resin has been made by the chemical division, with the following results:

Serial No. 11243.—Mineral resin No. 1, laminated.

Serial No. 11244.—Mineral resin No. 2, lump.

Components.	No. 11243.	No. 11244.
Moisture	0.75	0.55
Ash	0.2	1.46
Carbon	77.93	68.15
Hydrogen	9.14	8.97
Nitrogen	0.11	0.14
Oxygen	11.87	20.73
Total	100	100

For comparison, analyses of the samples of a similar resin, reported in *Comptes Rendus*, vol. 96, page 1453, are given, and also an analysis of pine resin from the *Pinus palustris:*

Components.	From Bucaramanga.	From Province of Antioquia.	Pine resin.
Carbon	82.7	71.89	73.9
Hydrogen	10.8	6.51	9.35
Nitrogen	.....	0.03	.....
Oxygen	6.5	21.57	16.75
Total	100	100	100

Wages in the Grand Duchy of Luxemburg.—Under date of February 17, Vice-Commercial Agent G. H. Murphy, of Luxemburg, transmitted the following statistics from the report of the Chamber of Commerce for 1892 concerning wages in the Grand Duchy of Luxemburg:

Leather-glove industry.

Daily wages.	Men.	Women.	Children.
Highest	$1.16	$0.29	$0.19 to $0.37
Lowest	.58	.14	
Average	$0.72 to .77	$0.19 to .24	

Potters (average)	per diem...	$0.39
Employés of the gas works (average)	per annum...	193.00
Printers (average)	per diem...	$0.68 to .77
Bookbinders (average)	do.....	.49 to .58
Employés of tobacco factories (average)	per annum...	115.80
Employés of the champagne factory (average):		
85 workmen (total earnings 75,000 francs)	per annum...	170.30
18 women (total earnings 9,000 francs)	do.....	96.50
20 basket-makers (total earnings 10,000 francs)	do.....	96.50

Consular Reports Transmitted to Other Departments.—The following reports were referred during the months of March and April to other departments for publication or for proper action thereon:

Consular officer reporting.	Date.	Subject.	Department to which referred.
E. Schneegans, Saigon	Jan. 27, 1894	Rice	Agricultural Department.
E. H. Plumacher, Maracaibo	Mar. 12, 1894	Patent law of Venezuela	Commissioner of Patents.
J. C. Monaghan, Chemnitz	Mar. 14, 1894	German bureau of statistics	Commissioner of Labor.
Do	Mar. 14, 1894	German emigration in 1893	Treasury Department (Bureau of Statistics).
E. Schneegans, Saigon	Feb. 10, 1894	Rice market of Saigon	Agricultural Department.
Do	Feb. 24, 1894	....do....	Do.
G. G. Dillard, Guayaquil	Mar. 20, 1894	Climate of Guayaquil	Do.
F. C. Penfield, Cairo	Apr. 2, 1894	Method of cultivating onions in Egypt.	Do.
F. H. Underwood, Leith	Feb. 20, 1894	The caves at Mentone	Smithsonian Institution.
Do	.....	The marine boiler, past and present.	Treasury Department (Bureau of Steamboat Inspection).
A. C. Johnson, Stuttgart	Feb. 19, 1894	Decrease of cattle in Würtemberg between 1892 and 1893.	Department of Agriculture.
T. Huston, Paso del Norte	Feb. 28, 1894	The cultivation and uses of the Chile plant.	Do.

EXTENSION OF MARKETS

FOR

AMERICAN FLOUR.

CIRCULAR.

On December 5, 1893, the following circular was addressed by the Department to all consular officers of the United States:

You are hereby requested to prepare for publication reports upon "The Extension of Markets for American Wheat Flour."

The following interrogatories cover the principal points upon which information is desired:

(1) What is the standard of living in your district? Are the people ready to eat American flour?

(2) What quality of flour is most used?

(3) What quantity of American wheat flour was imported into your district in the year ending June 30, 1891?

(4) What quantity in the year ending June 30, 1892?

(5) What quantity in the year ending June 30, 1893?

(6) What quantity of American wheat each year during the same period?

(7) What quantity of wheat flour from other countries during the same period?

(8) What quantity of wheat from other countries during the same period?

(9) What is the import duty on American wheat flour?

(10) What is the import duty on American wheat?

(11) What is the import duty on wheat flour from other countries?

(12) What is the import duty on wheat from other countries?

(13) What are the facilities for monetary exchange?

(14) What are the facilities for shipping from the United States to your port?

(15) If there are any obstacles in the way of the extension of trade in American flour, what are they?

(16) What, in your opinion, are the prospects for doing a more extensive business in American flour in the country in which you represent the United States?

In answer to questions 3, 4, 5, 6, 7, and 8 consular officers at seaports will furnish official statistics, others will furnish estimates.

Questions 9, 10, 11, and 12 are to be answered only by the consul-general in each country.

FRANCE.*

LIMOGES.

STANDARD OF LIVING.

The standard of living in this district is comparatively high. The bread is usually made from wheat flour, of which there are several grades. The cheaper varieties are those most employed, the working people buying the "mêlée." Rye flour is more commonly used in the country districts and by the poor in the towns and cities. American flour would undoubtedly have the preference, and is readily bought by the best bakers whenever it can be obtained, but it is so mixed by the *minotiers* with cheaper grades that as "American flour" it is hardly known.

QUALITY OF FLOUR USED.

The quality of flour in general use is of an inferior grade. The cheaper varieties, such as native and Italian, are principally employed.

IMPORTS OF FLOUR AND WHEAT.

It is exceedingly difficult to state with any accuracy the amount of American wheat or flour imported into this interior port. In the department of the Dordogne, No. 2 winter wheat is imported in considerable quantities. It is chiefly used for bread-making. This flour is very satisfactory to the consumers, and is exceedingly popular throughout the department. Very little Hungarian or Russian wheat finds its way to this market.

EXCHANGE FACILITIES.

The facilities for monetary exchange are excellent. The majority of the importers will give confirmed credit on Paris or New York.

OBSTACLES TO TRADE.

The chief obstacle in the way of importing American wheat and flour into this district is the heavy and recently increased duty that has been placed thereon.

TRADE OUTLOOK.

The prospects for doing a more extensive business in American wheat and flour in this district are not very good, although the trade in American

*This series of reports was begun in the February number (161, p. 395) and continued in the March number (162, p. 492) and in the April number (163, p. 709).

wheat is better than in flour. The reason of this is that, inasmuch as this is a cattle-raising country, wheat bran is an important item, and is counted upon in fattening the animals for the market.

GENERAL REMARKS.

There seems to be a tendency on the part of peasants to leave the country districts to find work among the industries in the towns and cities. While there may have been an increased acreage planted in wheat, owing to the destruction of many vineyards by the numerous enemies of the vine, it has been recently stated in the Chamber of Deputies that it would be better for France to buy her wheat than to raise it. As manufacturing increases and industries are developed there will, of necessity, be a decrease in bread-producing stuffs. France, unlike other countries, does not increase in population. Almost all the French land requires to be heavily fertilized and tilled to its utmost capacity in order to render a profit in grain-growing, and the growing of beets for sugar or alcohol and forestry are found to be more remunerative. Wherever it is possible vineyards will replace wheat fields. The wine harvest of 1893 was so exceptionally good that many farmers are considering the advisability of turning their wheat fields into vineyards again.

WALTER T. GRIFFIN,
Commercial Agent.

LIMOGES, *March 5, 1894.*

PARIS.

STANDARD OF LIVING.

The standard of living in France is high, as compared with that which prevails in the other continental countries of Europe, and even as compared with the average of the various standards existing among the different classes of the population and the different sections of the United States. It is materially higher in this consular district, including Paris and its environs, than in other parts of France, excepting, perhaps, in two or three large cities. In all the cities and large towns it is higher than among the peasantry of the rural districts; but even the peasants, who have been forced by the depression of agriculture which has existed for several years and has now culminated in a veritable crisis to reduce their consumption, are still better nourished than those of the countries south and east. In Paris, and throughout France in a somewhat less degree, the cost of the chief articles of alimentation is high—higher in many instances than in the United States, and higher for almost, if not quite, everything than in Belgium, Italy, Switzerland, Spain, England, or, perhaps, any other country in Europe.

This being the case, it is amazing that the masses of the people are able to supply themselves with such a substantial and nourishing diet. That they

do, must be set down to the traditional national characteristics of thrift and industry—characteristics which were never more strongly accentuated than at the present time. In France the masses waste nothing. Their time is as carefully utilized as their supplies, and the latter, by dint of care and skill in their preparation and use, are made to serve wants which few American housewives, however thrifty according to our standards, could supply as fully with twice the resources. In France, too, among the classes of wage-earners and other persons of small incomes comprising the bulk of the population, the husband and father is not the sole bread-winner of the family; every member, male and female, who is old enough to do so, contributes in some way to the maintenance of the household. Thus, while the prevailing rates of wages are lower than in England, and, in a greater degree, than in the United States, there is far less difference in the amount available for the support of a family than appears from current statistics.

Wages, as is well known, average considerably higher in France than in any other European country except England; but, considering the superior intelligence of French labor and its consequent productiveness, it is certainly cheaper, measured by its results, than that of most of the continental countries. The commanding importance of bread in the French dietary is traditional, and so well known as not to need emphasizing here. The French are preëminently a nation of bread-eaters. Bread is the chief article of food throughout the country, and even among the wealthier classes is of the first importance. Whatever may be the other ingredients of a French meal, the bread and the wine are never absent.

The consumption of bread in France was discussed in a recently published paper by Mr. L. Grandeau, an economic authority of high repute. Estimating the population of the country at 38,000,000, which is regarded as a fair average for the decade 1881–'91, Mr. Grandeau classifies the inhabitants in seven categories as to age, and makes a careful estimate of the aggregate daily consumption of bread by each class. His table, which is based upon the conclusions reached by the eminent student and writer, A. de Faville, in his work, "La France Economique," and other high authorities, is as follows:

Age.	Number of inhabitants.	Daily consumption of bread per capita.	Aggregate daily consumption.	
		Grams.	*Kilograms.*	*Pounds.*
Under 5	3,496,000	100	349,600	770,868
5 to 10	3,401,000	300	1,020,300	2,249,761
10 to 15	3,344,000	400	1,337,600	2,949,408
15 to 20	3,218,000	600	1,931,160	4,258,207
20 to 60	19,893,000	700	13,925,100	30,704,846
60 to 80	4,253,000	500	2,126,000	4,687,830
80 and upwards	395,000	400	158,160	348,743
Total	38,000,000	.....	20,847,920	45,969,662

M. Grandeau's explanations of this table are interesting, and not entirely irrelevant to the subject of this report. I translate a brief extract:

In estimating the quantities of bread stated as the daily ration of the individuals of each of these categories I am supported by physiological data, and, when they exist, in the figures given by the best authorities on such subjects. For the most numerous category—that of 20 to 60 years—I have adopted an average ration of 700 grams, inferior by 50 grams to the ration of the troops, which can be considered as that of the adult man in good health. This reduction from 750 to 700 grams seems to me justified by a double consideration.

In the first place, the 20,000,000 of persons comprised in this category are divided almost equally between men and women, and it is certain that the ration of the latter is materially inferior to that of the former. In the second place, their ages vary greatly, and the man of 50 to 60 years does not consume the 750 grams of bread which would be sometimes insufficient for the man of 20 to 25. In this calculation the quantities of flour consumed by the pastry-makers do not enter. There is no data upon which to estimate it; but on the other hand, I take no account of the considerable quantities of rye and buckwheat consumed, which, in some regions, are used almost to the exclusion of wheat. I believe, then, that the estimate of about 21,000,000 kilograms (46,297,000 pounds) as the daily consumption of wheat and meslin bread in France is a maximum. This makes the annual consumption 76,090,000 metric quintals (16,774,601,000 pounds). The average daily consumption of bread per capita in Paris is put at 400 grams; in all France at 584.6 grams.

But large as is the consumption of bread in France, it is supplemented in Paris and the larger cities and to a considerable extent in the rural districts by a substantial diet consisting of wine, soup, meat, cheese, vegetables, and fruit. Coffee is almost universally drunk in the morning, and comprises, with bread, the entire "first breakfast."

QUALITY OF FLOUR USED.

French bread averages of very good quality. It is considered, the world over, perhaps, the best made. The choicest quality, which is consumed not only by the wealthy, but also very largely by the "middle classes," known as *pain de luxe*, is made of the best grades of white wheat flour, that made from Hungarian and American wheat being preferred, frequently with an admixture of French white wheat. Cheaper bread (*pain ordinaire*), which is consumed by the poorer classes, is made of inferior grades of wheat, chiefly domestic, and also, to a very great extent, of meslin (wheat and rye mixed in varying proportions). The *pain de luxe* is light and exceedingly palatable, but is probably less nutritious, as a rule, than the best of the *pain ordinaire*.

Bread is not made at all in the household. Practically every pound of bread eaten in France is supplied by the bakeries. The price of bread ranges in Paris from 32½ centimes (5 centimes = 1 cent) per kilogram for the poorest grade to 40 centimes for the best. In Belgium and England the price ranges from 18 to 25 centimes.

IMPORTS OF FLOUR AND WHEAT.

As the official statistics of importations are given for the calendar year, I am unable to present the figures as to the importations of American wheat and flour during fiscal years ending June 30. The following shows the im-

portations for the calendar years 1890, 1891, and 1892; the figures for 1893 are not yet accessible:

Imports of flour and wheat into France during the calendar years 1890, 1891, and 1892.

Whence imported.	1890.	1891.	1892.
Wheat flour:			
United States.....pounds...	.....	49,071,310	36,466,950
Other countries.....do.....	69,998,790	114,515,962	57,353,330
Total.....do.....	69,998,790	163,587,272	93,820,280
Wheat:			
United States.....bushels...	6,650,863	29,966,320	36,974,410
Other countries.....do.....	32,121,060	42,058,029	32,259,036
Total.....do.....	38,771,923	72,024,349	69,233,446

There are no data upon which to base an estimate of any real value as to the proportion of wheat and flour imported from the United States or elsewhere into France which is consumed in this consular district (Paris). It is, of course, very much greater than the proportion of the population of this district to that of France.

Undoubtedly the greater part of the American wheat and flour brought to France finds its way ultimately to Paris. The remainder is chiefly consumed in three or four other large cities and at the watering places, such as Nice, Vichy, Biarritz, etc.

DUTIES.

As I write, the import duties on wheat and flour have just been materially increased by the French Parliament after one of the most brilliant and comprehensive debates in its history, in which the causes of the existing depression in French agriculture were exhaustively discussed, and all phases of the economic question presented by some of the ablest men in the Republic.

Several propositions for an increase of the customs duty on wheat and its derivatives were before the Parliament. The Government proposed an increase of the duty on wheat from 5 francs to 7 francs per 100 kilograms (220.46 pounds).

The *commission des douanes* (committee on tariff) reported favorably a measure fixing the duty at 8 francs per 100 kilograms, with a provision for a sliding scale under which, with every increase of 50 centimes (about 10 cents) per 100 kilograms in the market price of wheat above 25.50 francs (about $4.92), a corresponding reduction of 50 centimes in the duty should be made, until, with wheat above 30 francs ($5.79), the duty should be practically abrogated.

A fixed duty of 10 francs per 100 kilograms was strongly urged, and a proposition to give the Government a monopoly of the importation of wheat was also earnestly advocated. The result was the adoption of the Government's proposition by a vote in the Chamber of 358 ayes against 152 nays, and in the Senate of 189 ayes against 32 nays. I give these figures because

an important element in the question of the future demand for American flour and wheat in France is the permanence, or otherwise, of the increase in duties recently voted, the prospect for which may be inferred from the relative numbers of its supporters and opponents in the present Parliament.

The following shows the new tariff per 100 kilograms on farinaceous food stuffs, as well as that which it replaces:

Description.	Old rates.		New rates.	
Wheat, spelt, and meslin:	*Francs.*		*Francs.*	
Grains	5	$0.965	7	$1.35
Crushed and boulanges (ready to grind, containing more than 10 per cent of meal)	8	1.54	11	2.12
Flours:				
At rate of extraction of more than 70 per cent	8	1.54	11	2.12
At rate of extraction of between 70 and 60 per cent	10	1.93	13.50	2.61
At rate of extraction of 60 per cent and under	12	2.32	16	3.09
Sea biscuit and bread	5	.965	7	1.35
Grits and oatmeal, pearled and hulled	12	2.32	16	3.09
Millet, ground and cleaned	.....	.....	6	1.16
Italian pastes (semoules and pates)	8	1.54	13	2.51

This schedule applies to all the products named shipped directly to French ports from the country of origin.

EXCHANGE AND SHIPPING FACILITIES.

It is scarcely necessary to say that the facilities for monetary exchange with France are of the best, and adequate to any demand that can possibly be made upon them, and the same is true of the transportation facilities, direct communication by numerous lines of steamers and sailing vessels existing between the ports on both the Atlantic and the Pacific coasts of the United States and the several ports of France on the English Channel, the Atlantic Ocean, and the Mediterranean Sea.

The expense of transportation from the United States to France has been steadily declining for years. In 1879 the cost of carrying a ton of wheat from New York to Havre was 56 francs ($10.81); it is now 10.05 francs ($1.94).

A similar decline has occured in the charges for the transportation of flour and other commodities.

This cheapening of transportation has greatly facilitated the exportation of food stuffs from the United States to Europe, but its effect has been to a great extent neutralized by the increasing competition of Russia, India, and the Argentine Republic in the wheat markets (and of Hungary in the choicest grades of wheat); also, by the raising of the French tariff, which is admitted to have been done, in part at least, by way of retaliation for the hostile tariff legislation of the United States in 1890.

OBSTACLES TO TRADE.

The obstacles to any very great extension in the immediate future of the French market for American flour have been indicated more or less clearly

in the foregoing. They may be summarized (not necessarily in the order of their importance) thus:

(1) The magnitude of the French milling industry, which is an important factor in the business of the country (and in politics when its interests are directly affected). This industry is widely diffused throughout France, and is in close touch with the agricultural interests in the country and with the financial interests in the cities. It is estimated that there are 22,000 mills in France.* Their aggregate milling capacity is claimed to be sufficient to supply all the demands of the country for flour. The industry is well organized. When the recent agitation for an increase in the duties on wheat began, the milling interests were at first hostile, but they afterwards changed their attitude and united with the agriculturists in supporting the increase on condition that a proportionate increase should be conceded on flour and bread, which was done.

(2) The new duties on wheat and flour are the highest of any country in Europe, and, with the discrimination as between wheat and flour, raise a formidable barrier against an increase in the importations of the latter from America or elsewhere.

(3) The normal consumption of wheat, for all purposes, in France is estimated at from 118,000,000 to 120,000,000 hectoliters (334,860,400 to 340,536,000 bushels) and the domestic production at from 98,000,000 to 108,000,000 hectoliters (278,104,400 to 306,482,400 bushels), leaving a deficit of only 12,000,000 to 20,000,000 hectoliters (34,053,600 to 56,756,000 bushels) to be supplied by importation, either in the form of flour or wheat. For the reasons already set forth, this importation is more likely to be made in the form of wheat than of flour, and with the increasing wheat production of Russia, India, the Argentine Republic, and Hungary the near outlook for a greatly increased demand for American flour can hardly be considered flattering.

(4) Another important element enters into the actual situation, as it affects the immediate future, and that is the immense stocks of wheat and flour now in this country. It is claimed and not denied that the quantity of wheat now in the country exceeds 100,000,000 hectoliters, or about as much as the average annual domestic production. The importations of wheat from September 1, 1893, to February 15, 1894, are officially stated at 8,762,267 metric quintals (32,196,950 bushels).

In the recent discussions in the Chamber of Deputies on the proposed increase of duties on wheat and flour, the Minister of Agriculture declared that, in his opinion, an important influence in maintaining the depression in the price of wheat was the large accumulation of American flour in the warehouses.

TRADE OUTLOOK.

I do not wish to be understood as saying that intelligent efforts to increase the exports of American flour to France will be labor lost. There

*The number of mills in France "occupied exclusively with the grinding of grain" is given further on in this report at 50,000.

will always be, in spite of artificial obstacles, a considerable and probably a steadily increasing demand for the choicest grades of our flour, which, apparently, have no serious competition to fear except that of Hungary. These choice grades have a high reputation in France, and, with systematic efforts to push them, there will no doubt be a steady increase in the sales from year to year. In the event that the existing American tariff, which bears so heavily upon various French manufactures is materially modified, the already formidable opposition to the new French tariff on wheat and flour will be greatly increased, and if the new duties fail, within a reasonable time, to produce the results predicted by their advocates, it is not improbable that they will be abrogated. And thus, while the immediate future of the French market for American flour is not flattering, it contains possibilities which seem to justify continued efforts on the part of American millers.

THE MILLING INDUSTRY OF FRANCE.

By way of supplement to the foregoing report a few additional facts as to the dimensions of the milling industry of France may be pertinent. They are gathered from a brochure on the subject published since the preparation of this report. In this publication an interesting account is given of the origin and evolution of this industry in France.

Among the ancient Gauls the grain was not ground, but was eaten in its natural state. Later the unground grain was cooked and eaten in "pates" or in puddings. The first attempts to convert the grain into meal or flour followed the system in use among the ancient Greeks, who covered stones with a light layer of damp grain, which was then dried in the sun and afterwards crushed with a heavy roller of stone or metal. The next stage in the evolution of the mill was the pounding of the grain in mortars with wooden pestles. Then came the flat millstones, which were made to revolve, the one on the other, at first by hand and later by animal power. Windmills—of which quite a number are still in operation in Brittany, and which are said to have been in use in the Orient long before the Crusades—were at this epoch introduced into France and generally utilized until about the middle of the eleventh century; then, because of their irregularity, they began to be little by little supplanted by water mills. These were, at first, operated on boats anchored in bodies of water, but later were fixed in permanent constructions on the banks of streams. It was not until 1780 that the art of modern milling was invented, as is claimed, by two Frenchmen—Col. Ducrest and the engineer Favre. Their attempts, however, to introduce the new process into France were futile, and they therefore went to the United States, where, with the coöperation of the American engineer Oliver Evans, they established the first mill in the world using the *monture basse*.

The first mill of this kind in England dates from 1789, and the first in France only from 1816. Since that time three kinds of mills have been in use in this country—windmills, water mills, and steam mills. Except in Brittany, where windmills do the grinding for the small farmers, these mills

have practically fallen into desuetude in France. A steam mill was, it is claimed, built in France as long ago as 1742, but it was not until 1816 that the development of these mills began.

The grinding was all done by millstones until 1873, when the system of porcelain cylinders, supplanted later by metal (steel or *fonte dur*) cylinders, was introduced. This system had been in use in Switzerland since 1832 and in Hungary and Italy for a number of years prior to 1873.

A certain number of mills now use the cylinders; in others the wheat is ground by millstones, and compressors with cylinders are used to convert the grits into flour.

The traité pratique de la meunerie gives the following comparative results obtained per 100 kilograms (220.46 pounds) of wheat by millstone and by cylinder grinding:

Products.	By millstones.		By cylinders.	
	Basse (low).	Haute (high).	Basse (low).	Haute (high).
	Kilograms.	*Kilograms.*	*Kilograms.*	*Kilograms.*
Flour of grits	.....	30	.....	36
First quality	68.4	10	72	12
Second quality	2.55	.....	2	.....
Third quality	4	34	1	25
Fourth quality	.....	1	.....	2
Issues	21	22	22	21
Waste	4.05	3	3	4
Total	100	100	100	100

The cylinder mills yield a greater proportion of superior flour than the other mills, and their product is in greater demand among bakers and pastry cooks, especially in Paris. It produces not only a finer quality of bread and pastry, but it yields from 3 to 4 per cent more bread than other flour.

There are in France about 50,000 mills occupied exclusively with the grinding of grain.

The annual consumption of wheat in France is about 120,000,000 hectoliters (340,536,000 bushels). These 120,000,000 hectoliters represent, at the average weight of 77.5 kilograms to the hectoliter, 93,000,000 metric quintals, which, at the present price of 20 francs per quintal, form the respectable sum of 1,860,000,000 francs ($358,980,000). These 93,000,000 quintals of wheat when ground into flour produce—

Description.	Per cent.	Quantity.	Price per quintal.		Value.	
Flour:		*Metric quintals.*	*Francs.*		*Francs.*	
First quality	70	65,100,000	30	$5.790	1,953,000,000	$376,929,000
Second quality	2	1,860,000	24	4.632	44,640,000	8,615,520
Third quality	3	2,790,000	18	3.474	50,220,000	9,692,460
Issues (bran, etc.)	21	19,530,000	14	2.702	273,420,000	52,770,060
Waste	4	3,720,000	.....	.....	.....	.....
Total	100	93,000,000	.....	.....	2,321,280,000	448,007,040

The millers not only grind wheat, but also the inferior grains, such as rye, barley, maize, buckwheat, oats, etc. In adding the value of these different grains for the quantity that passes annually through the mills we reach a figure above 2,500,000,000 francs ($482,500,000). These figures are made upon the basis of the unprecedentedly low prices of grain prevailing this year. At the prices prevailing in a year of scarcity they would exceed 4,000,000,000 francs ($772,000,000).

The French milling industry is, as stated in the body of the foregoing report, thoroughly organized. In 1886 the National Association of French Millers (l'Association Nationale de la Meunerie Française) was founded. Its headquarters are at Paris, and it numbers more than 3,000 members, including the owners of all the great mills in the country. This powerful association holds an annual congress in Paris (in September), where the various questions of practical or commercial interest to the trade are discussed. In connection with the congress a splendid exposition is made of milling apparatus, tools, and materials. This organization is constantly on the alert against foreign competition in the French market, and is a factor always to be considered by those who are interested in extending the demand for American flour in France.

SAMUEL E. MORSS,
Consul-General.

PARIS, *March 16, 1894.*

ROUEN.

STANDARD OF LIVING.

People in this district prefer, and generally manage to eat, bread made from the best quality of flour. In city and country alike bakers generally supply the grocers and consumers.

Consumers pay no attention to the origin, but regard the quality of the flour used by bakers and pastry cooks. They have no prejudice against American flour, but are deterred from its use by the increased cost. The few specimens of American flour received here were of the best quality, and in that respect gave satisfaction.

QUALITY OF FLOUR USED.

Three kinds of flour are used. Those who live well require *pain de luxe* (dainty bread), very white and crisp, which can be made only by mixing local with American or Hungarian flour. Hungarian flour is more easily obtained, and therefore is chosen by the bakers and pastry cooks dealing in fancy bread and biscuits. The mixture is generally one-half superior French and one-half Hungarian. Strange as it may seem, a celebrated caterer in New York receives regularly shipments of Hungarian flour from the port of Rouen, which is a considerable depot for the receipt and distribution of this flour, as shown in accompanying tables. I have good authority for stating

that the same results can be obtained by the substitution of the American flour (best brands) for Hungarian.

In some parts of the country a bread is made from flour out of which only 25 per cent of bran is extracted. This makes a wholesome and cheaper bread. A large proportion of the best bread sold by town bakers is made from French wheat. This bread is made in two ways—with leaven prepared in the evening and allowed to work from 10 p. m. to 3 a. m., the hour for commencing work in bakeries; the other, mixed with yeast just before kneading.

There is but little change from year to year in the form, quality, and mode of preparation of bread, although many of the bakeries have the modern improvements for kneading the dough and for working with facility, rapidity, and economy.

A bakery capable of using a ton of flour per day, working upon 5-pound loaves only, would turn out about half the quantity of rolls and crusts; the profit on the latter, however, would be much greater. The former brings 80 centimes (16 cents) for 5-pound loaves, the latter double the price or more, as the buyer of the ordinary bread can force the baker to give him full weight by going to the shop, whereas the customer who receives the bread at his domicile can not insist upon full weight. Such a bakery, with ovens, tools, dwelling, and shop, would cost from $4,000 to $6,000, depending upon locality. The headman is paid from 40 to 50 francs ($7.72 to $9.65) a month, and the second man who assists, and, in emergency, takes the baker's place, from 15 to 30 francs ($3.90 to $5.79) a month, board and lodging included. Small boys who deliver the bread are fed and lodged, and are paid from 5 to 15 francs (96.5 cents to $3.90) per month.

The most primitive style of bookkeeping, dating back to the discovery of bread, still prevails with bakers. On delivering bread the buyer presents a twig of tree or small piece of thin wood precisely like one carried by the baker's boy; these are placed side by side and knotched with a knife, and in case of difference the silent sticks give their evidence.

Many bakers are indebted to millers, and therefore can not act independently in regard to purchase of flour.

The subject of bread is attracting much attention on the part of physicians and savants and agricultural societies. These claim that the animals have the most nutritious and wholesome portion of the wheat for their share, while the overrefined portion only is made into an extremely white bread, which alone satisfies alike the poor and the rich. Much of the regulation bread made for the use of soldiers in garrison is brown, and contains a portion of middlings. Although many of the soldiers are from the country and have been brought up on this bread, they sell it to the camp sutlers or grocers and buy white bread. Therefore this movement will not be likely to materially change the deep-seated prejudice against colored bread.

Many of the mills are run by water power very economically. In the center of this city there is a large and imposing mansion on a principal street,

with a *porte-cochère* entrance, closed by doors similar to those of the most fashionable dwellings. Within these doors is a courtyard, where the large four-horse wagons unload wheat, and can load with flour in sacks in from 3 to 5 tons lots for delivery to the bakers. A portion of the building consists of fine apartments, in which the families are luxuriously accommodated. The stream which runs the mill flows beneath, and is entirely concealed.

IMPORTS OF FLOUR AND WHEAT.

Rouen.—The following statement shows the imports of flour and wheat at Rouen during the years ending June 30, 1891, 1892, and 1893:

Whence imported.	1891.	1892.	1893.
Wheat flour.	*Tons.*	*Tons.*	*Tons.*
Austria-Hungary	9,378	12,826	6,550
United States	.....	1,020	.....
Other countries	10	2	.....
Total	9,388	13,838	6,550
Wheat.			
United States	11,936	183,409	5,566
Russia	24,295	.....	513
Roumania	18,635	9,650	2,117
Australasia	22,350	81,381	5,262
Argentine Republic	4,761	4,789	1,319
Other countries	29,105	22,823	322
Total	111,082	302,052	15,098

Boulogne.—The wheat flour imported into Boulogne during the three years under consideration consisted of 10 tons, imported in 1893. No wheat was imported in 1891, but 30 tons and 376 tons were imported in 1892 and 1893, respectively.

Calais.—No wheat flour was imported during the three years ending December 31, 1893, but during the same years 34,386 tons of American wheat were imported, and 27,796 tons from other countries.

Dieppe.—During the year 1893 American wheat was imported into Dieppe to the amount of 22,197 tons, and wheat from other countries to the amount of 3,020 tons. No wheat was imported in 1891 and 1892, nor was there any wheat flour imported during any of the three years.

EXCHANGE FACILITIES.

The exchange of money on a large scale can be readily and favorably effected through Parisian banks. The small banks and branch establishments located in the towns are exorbitant in their charges and contracted in their ideas of banking business.

OBSTACLES TO TRADE.

The tariff on flour favors the French millers to a great extent. The millers come into direct contact with the agriculturists, and exert a great influence

over that large body of men. They also give or withhold credit to bakers requiring help. The interest of the bakers and consumers would favor the lowest rate and the competition arising from the importation of foreign flour. Many consumers understand that under the plea of protection a large revenue is thus brought to the aid of the Government, which is strained to the utmost to equalize its budget, and they see in the bread tax a happy issue out of a position which might call for a heavier tax upon their incomes. Another obstacle arises from the difficulty of purchasing and storing a cargo at a time for distribution throughout the country.

Bakers, pastry cooks, and biscuit manufacturers would like to receive from 8 to 10 tons at a time. From Rouen and Calais such distributions could be made, as lines of canals and railroads diverge from those centers to all of the rich towns adjacent.

The best French flour costs to-day per 100 kilograms (220 pounds) 28.25 francs ($5.45); Hungarian (very best), 45 francs ($8.69); American, 39 francs ($7.53)—delivered at the Calais station. This difference between 28 francs and 39 francs affords an opportunity for American flour to take the place of French, and really to replace the Hungarian. An important obstacle in the way of the introduction of American flour is the depreciation of silver in India, Brazil, and other countries. For instance, should a farmer at Buenos Ayres sell a shipload of wheat to a miller at Rouen for 5 francs (96½ cents) per 100 kilograms, it would not be a large price, relatively, but as the payment would be in gold, the premium upon which is 220 per cent, the profit would be very fair.

As before stated, the flour mills are driven cheaply by water or wind, and good roads assist the transportation of the grain and flour.

TRADE OUTLOOK.

It is well known that Paris, Lyons, and other large cities consume relatively large quantities of American flour, and I believe that active canvassing might have favorable results in smaller towns and among biscuit manufacturers, who highly appreciate a very white, crisp, and rich flour. These factories have, in a large measure, replaced the supply of foreign biscuits. A large and successful factory employing 500 men exists at Calais, and the proprietor bears me out in the above assertion.

The American flour (branded "Oregon") experimented with was found to require but little water, and did not, while baking, change the form, design, or print on the biscuits.

Bakers and pastry men would prefer the American flour as a matter of economy. A regular supply of the flour in small quantities would have to be provided.

The French millers deliver their flour in sacks containing 100 kilograms (220 pounds) and in 150-kilogram sacks. The Hungarian flour is also received in sacks. These sacks could be returned, as the bakers have receptacles for flour. I have not seen a barrel of flour since I have been in

France. It would not do to undertake any change in the mode of delivery to which they have been accustomed.

Should firms of American dealers desire to make such arrangements, they would find in all large and moderate sized cities a syndicate of bakers who would gladly coöperate with them, and they would find in my district the consul and the consular agents willing to assist such an undertaking to the extent of their ability.

CHAS. P. WILLIAMS,
Consul.

ROUEN, *March 8, 1894.*

GERMANY.

BRESLAU.

OBSTACLES TO TRADE.

After diligent inquiries among the leading merchants in this city, and with the kind assistance of the Chamber of Commerce, I was able to ascertain that there are but poor prospects for an extension of the American wheat and flour trade in this district. The principal reasons are these: There is, first of all, a strictly limited demand for wheat flour, it being used only for light, fancy baking. The every-day bread, which constitutes the principal article of food, especially among the middle and lower classes, is made of rye. It is very cheap, has an agreeable taste, and is considered by the people more nutritious than wheaten bread, for which reasons it is preferred; second, Silesia is a wheat-producing province, its soil being particularly adapted to wheat raising, and for the past two years there have been very good harvests. Last year's harvest was not only exceptional, so far as quantity and quality are concerned, but the weather was so favorable that the grain was easily and quickly brought under shelter. Toward the end of August large quantities were thrown upon the market, causing a rapid decline in prices, which almost put a stop to all imports. Prices are lower than they ever were before. A ton of wheat of good quality may be had for 140 marks ($33.32) while in former years the price was 250 marks ($59.50). Several of the flour mills are closed part of the time, because the price of flour is so low that grinding the wheat does not pay expenses.

Some German bakers assert, although apparently with doubtful reason, that flour made from American wheat, excepting the Red River brand, which is occasionally used unmixed, is not well adapted for baking unless mixed with a native brand.

IMPORTS OF WHEAT AND FLOUR.

The quantity of American wheat which came to this district in 1890–'91 was 15,000 tons; in 1891–'92, 20,000 tons; in 1892–'93, 55,000 tons. This increase, however, has not been kept up, and since the great fall in prices, already mentioned, the importation has almost entirely ceased. These shipments were bought up by the local dealers and millers from merchants in Hamburg, Stettin, and Berlin. They were brought here by water on the rivers Elbe and Oder, only small quantities coming by rail. During the same years 40,000 tons of wheat arrived from other countries.

American wheat flour has never come to this district, and there is no prospect of introducing it, unless it is considerably cheaper in price than the local flour.

TRADE OUTLOOK.

It will thus be seen that it will be very difficult to bring larger quantities of American wheat to this district as long as harvests are abundant and the market remains overstocked.

FREDERICK OPP,*
Consul.

BRESLAU, *March 15, 1894.*

HAMBURG.

STANDARD OF LIVING.

The standard of living in the Hamburg consular district is a comparatively high one. The district embraces many flourishing cities and towns, and the agricultural population is on the whole a thrifty one. The people are quite ready to eat American flour when it offers advantages, regarding quality and price, over German or other flour.

QUALITY OF FLOUR USED.

The flour most used is a quality which sells at about $1.67 per bag of 220 pounds. There is also a fair demand for white flour, with good baking qualities, which sells at about $2.85 per bag of 220 pounds. Superior varieties, well milled, valued at $4.45 to $4.55 per bag of 220 pounds find strong competition in Hungarian flour.

IMPORTS OF WHEAT AND FLOUR.

The table following shows the quantities of flour and wheat imported into the free port of the city of Hamburg from the United States and other foreign countries during the calendar years 1891, 1892, and 1893.

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* CORN BREAD IN GERMANY.—In an appendix to his report on the "Extension of the Market for American Flour," Consul Opp writes as follows: "It was an original intention of mine to make an effort toward the introduction of corn bread as a food for the German people, for two reasons: First, because I know from experience that it is not only a very palatable bread, but is wholesome, cheap, and nourishing; second, were the effort successful, it would materially enhance the value of one of the staple and most reliable crops of our great Western and Southern fields. But my ardor in this direction has been somewhat cooled by the realization of the fact that the Germans never eat hot bread, and, of course, cold corn bread could never be recommended, whereas warm corn or egg bread could be indorsed to the fullest extent. This idea was more strongly impressed upon me by similar views expressed by the special representative in Europe of the Department of Agriculture—Mr. John Mattes. Were it a contest of warm wheat or rye bread versus warm corn or egg bread, there would be better hopes of ultimate success for the article which is almost indispensable to the laboring element of our western and southern country, but, since the Germans have been from time immemorial accustomed to wheat or rye bread in a cold form, another bread in a warm form will, of course, be slow in recommending itself. However, when it is remembered that almost all of their other dinner dishes are served fully as warm, if not warmer, than ours, there is no good reason why the bread should not be served in a like condition."

Flour and wheat imported into Hamburg in 1891, 1892, and 1893.

From—	1891.	1892.	1893.
Wheat.	*Pounds.*	*Pounds.*	*Pounds.*
United States	135,690,500	388,792,360	125,859,580
Other countries	357,480,420	423,563,580	205,520,920
Total	493,170,920	812,355,940	331,380,500
Wheat flour.			
United States	2,909,280	14,586,660	50,360,640
Other countries	4,206,180	2,945,580	4,907,100
Total	7,115,460	17,532,240	55,267,740

EXCHANGE AND SHIPPING FACILITIES.

The facilities for monetary exchange in Hamburg, and for shipping from the United States to this port, are as good as in almost any port of the world.

OBSTACLES TO TRADE.

The only obstacles in the way of the extension of trade in American flour is, as far as I can learn, the price of our product. If prices can be lowered without lowering the quality of the flour, there appears to be no reason why the trade should not be very considerably increased.

TRADE OUTLOOK.

The grain trade is at present very much depressed, and in consequence the sale of American flour is extremely difficult. Unless this year's crops are exceptionally poor in Germany, I fear the outlook for the revival of the American flour trade in this country is a poor one.

CHAS. H. BURKE,
Acting Consul.

HAMBURG, *March 17, 1894.*

KEHL.

STANDARD OF LIVING.

Living in Alsace-Lorraine is expensive. The standard of living among the best classes is high, although wheat flour is not such an item in their diet as it is with similar classes in the United States.

Laborers in the wine-growing districts demand and receive an extravagantly large quantity of food, and wheat flour is a considerable item in it.

Army rations are of a very low order, but from the fact that the common soldier is well nourished it is easy to infer that the frequent receipt of packages from their homes supply this large fraction of Germany's population with a goodly share of the food stuffs in general use.

The food of the masses is principally coarse, but even the poor consume some good wheat flour.

QUALITY OF FLOUR USED.

I am informed by dealers in wheat that poorly milled American flour has been put on the market here, and in consequence the people are now afraid of the American manufacture. It was not learned where in the United States the flour spoken of was milled, and the evidence is not conclusive that the facts as stated are true. The people are ready to eat American flour if it is of a good quality. Retail dealers in Strassburg state they are not acquainted with the American product, but say they may get it mixed with other flour or under other brands.

The Hungarian is the best quality of flour used in this district, and it is used quite extensively. It retails here at 5 and 6 cents per pound.

The mills of Alsace put seven grades of flour on the market, made mostly from Pennsylvania red winter, Milwaukee spring, and Kansas winter wheats. A mixture of grades one and three and rye flour produces the grade in most common use.

Various grades of oatmeal are on the market, but in point of excellence none of them can compare with the best grades of American makes.

All classes consume bread for their morning repast made from good grades of wheat flour. Small breads made from good grades of wheat flour are the principal attractions on notion stands on the street sides. The brick-shaped, turf-appearing "Bumberneckel"—a sort of bread made for soldiers and horses—does not contain any traces of wheat flour. Bread made of pure rye flour is used, but not to so great an extent as in other parts of Germany, and while the "black bread" is not used so much as in northern Germany, it is still used. Neither is this flour bread as good as in the north, where it is as delicious as the best Graham bread in the United States. This is the quality of bread Germans eat with butter.

IMPORTS OF FLOUR AND WHEAT.

It is very difficult to estimate the quantity of flour or wheat imported into this district. The Chamber of Commerce at Strassburg, after a delay of three weeks, excused itself from furnishing any information on the subject on the ground that it is not a diplomatic board. A similar reply, after a like delay, was received from the Chamber of Commerce at Mannheim.

EXCHANGE AND SHIPPING FACILITIES.

The facilities for monetary exchange are good. The bank of C. Schwartzmann, at Strassburg, does an exchange business with the United States. There are several other important banks in that city and elsewhere in this consular district. The great monetary centers of Frankfort on the one side and Paris on the other are only a few hours distant.

Mannheim is the nearest distributing depot. Strassburg may be reached by water.

A project is now on foot for the construction of a canal on the Alsatian side of the River Rhine from Strassburg to a navigable point in that river.

This completed, Strassburg will have direct water communication with the seaport of Rotterdam, and it will become a distributing point for the territory south, including Switzerland.

OBSTACLES TO TRADE.

The obstacles in the way of American flour coming in are the disproportionate rates of import duties on flour and wheat, which serve as a protection for native mills; the fact that there are numerous mills in the district with apparent capacity for supplying the home demand; and the inborn tendency of the German to favor his home-products first.

TRADE OUTLOOK.

The farmers in Alsace have a surplus stock of old wheat on hand, which they refuse to market on account of low prices. The present price of wheat is at the rate of $1.21½ per bushel. If the proper quality of American-made flour should be put into the hands of good agents, I have no doubt but that its trade might be extended; but it must be remembered that a native commission man handling American and homemade flours, with equal profit to himself, will favor the sale of the home made article.

GEORGE KEENAN,
Consul.

KEHL, *March 10, 1894.*

SWITZERLAND.

HORGEN.

(CORRECTION.)

In my report on "American wheat and wheat flour in Switzerland"* I stated the Swiss tariff on wheat flour to be 2.50 francs (48¼ cents) per metric centner (220 pounds). This is the rate of duty imposed on flour by the general tariff law of Switzerland. I have found, however, that the imports from the United States, under the most-favored-nation clause (articles 8, 9, and 10 of the treaty of November 25, 1850), are entitled to the benefit of the conventional duty established by special treaties with different countries, which, on flour, is 2 francs (38.6 cents) per metric centner, instead of the general rate of 2.50 francs. Although this difference does not affect the main points of, or in any way alter the results and conclusions arrived at in, my report, I consider it my duty to make this correction.

WM. F. KEMMLER,
Consul.

HORGEN, *March 28, 1894.*

*No. 162, p. 575.

TURKEY IN EUROPE.

CONSTANTINOPLE.

STANDARD OF LIVING.

The standard of living in this district is very different from that which prevails in western Europe, especially among the natives of the middle and lower classes, who generally use common or brown bread made from a low grade of wheat flour manufactured at the home mills, and sold very cheap. There is no rye flour used here. They eat fish, but eat little flesh meat, living chiefly on rice and vegetables, the latter being produced in great variety. The foreigners and natives of the higher class imitate the standard of living in western Europe as much as the markets will permit. These use the higher grades of flour, and would gladly use American flour if the price permitted its sale in this market.

QUALITY OF FLOUR USED.

Only a very small amount of bread made from first-quality flour is used by the lower classes in this part of the Turkish Empire, and even the middle classes use flour made largely from an inferior quality of wheat. Most of the flour used is manufactured at the native mills, and is of the first and second grades. Very little of this is made by the "roller process," as these improved mills have not come into general use in Turkey. The best grade of flour used here is imported principally from Russia and Roumania.

IMPORTS OF FLOUR AND WHEAT.

There was no American wheat flour imported into this district during the years 1891, 1892, and 1893.

The importations of wheat flour and wheat from other countries during the Turkish fiscal years ending March 13, 1890, 1891, and 1892, were as follows:

Year ending March 13—	Wheat flour.	Wheat.
	Barrels.	*Bushels.*
1890	412,848	1,706,908
1891	472,824	1,209,358
1892	541,206	602,448

The official figures for 1893 are not obtainable, but estimates by dealers place the importation of flour at 360,000 barrels, and of wheat at 500,000 bushels.

DUTIES.

The import duty in the Turkish Empire is 8 per cent ad valorem on all articles imported, except agricultural implements, which are free.

EXCHANGE AND SHIPPING FACILITIES.

The facilities for monetary exchange with the United States are not as good as with the European countries. It is difficult to negotiate exchange on the United States without paying a high premium.

The shipping facilities from the United States are very unfavorable. There being no direct line of steamers, all goods must be transshipped, which causes delay and increases the charges for freight.

OBSTACLES TO TRADE.

In addition to the increased cost of freight and exchange, as compared with European countries, the prices are such as to preclude the sale of either American wheat or flour in this market. Wheat is now selling in this city at from 57 to 70 cents per bushel, and flour from $2.83 to $4.24 per barrel. These prices, which include the duty, do not greatly differ from those of the Chicago market, as reported in the American newspapers.

From the grain dealers here I learn that the price of wheat is now much lower than in former years. This is largely due to the new railroad to the interior of Asiatic Turkey, and to the abolition of the 8 per cent ad valorem duty formerly charged on articles shipped from one province to another. Now, wheat from any part of the Turkish Empire can be shipped to Constantinople without paying duty. The want of American commercial agencies in this country is also another serious hindrance to the introduction of American wheat and flour, as well as all other American goods.

TRADE OUTLOOK.

From the facts already stated there appears no good reason to indulge the hope of introducing American wheat flour into this district.

LUTHER SHORT,
Consul-General.

CONSTANTINOPLE, *March 20, 1894.*

UNITED KINGDOM.

DUNDEE.

STANDARD OF LIVING.

The population of this city is about 160,000, of whom it is estimated that 70,000 belong to the working classes, including those engaged in industrial, domestic, agricultural, and fishing pursuits. The standard of living varies according to the circumstances of the individual or family, and is probably lower than in most cities of a similar size. On account of the estimation in which American flour is held, by reason of its excellent quality and cheapness, I am informed by persons in the trade that the greater portion of the flour consumed in this district is American, and even of the flour milled in the district nearly one-half is manufactured from American wheat.

QUALITY OF FLOUR USED.

The quality of flour most used is that known in the trade as "straights" or "bakers."

IMPORTS OF FLOUR AND WHEAT.

The following table shows the quantity of wheat flour and wheat imported into Dundee during the fiscal years mentioned.

Year.	Imported from—		
	United States.	Other countries.	Total.
Wheat flour.	*Tons.*	*Tons.*	*Tons.*
1891	.....	3,106	3,106
1892	128	942	1,070
1893	2,604	1,618	4,222
Wheat.			
1891	425	4,237	4,662
1892	2,116	1,028	3,144
1893	6,619	.....	6,619

Of the 1,618 tons of flour imported in 1893 from countries other than the United States, 1,057 tons came from Montreal in vessels bringing Canadian cattle, but, owing to the restrictions imposed by the British Government upon the importation of cattle from Canada, no flour is at present being received in this way.

EXCHANGE AND SHIPPING FACILITIES.

The usual practice is for shippers to draw at sixty days' sight, the draft being accompanied by the invoice and bill of lading, so that it is impossible for the consignee to get his goods without first making payment. The facilities for monetary exchange are ample.

The only direct steamers from the United States are those of the Arrow line, which ply between New York, Leith, and Dundee. They have no regular times for sailing, and only do so to meet the requirements of the trade. Most of the American wheat flour imported comes to Hull, whence it is brought by steamer to Dundee.

OBSTACLES TO TRADE.

No obstacles in the way of extension of trade in American flour are known to exist, other than the competition with other countries.

TRADE OUTLOOK.

In my opinion the prospects for doing a more extensive business are not good, for the very satisfactory reason that the United States at present have nearly the whole trade.

JOHN M. SAVAGE,
Acting Consul.

DUNDEE, *March 26, 1894.*

FALMOUTH.

STANDARD OF LIVING.

The standard of living in this district, the population of which is composed principally of miners, is fair—good, plain food of rather above the average quality being consumed.

QUALITY OF FLOUR USED.

In flour especially four-fifths of the consumption is of the finest quality, the greater portion of which is of English make.

IMPORTS OF FLOUR AND WHEAT.

No American wheat or flour was imported in 1891 or 1892. In 1893 one cargo of American flour and wheat (amount of each not ascertained) was received by an 800-ton vessel. In 1893 two other cargoes of Oregon wheat were received, per 765-ton and 1,400-ton ships.

In 1891 one cargo of wheat from each of the following countries was imported: Turkey, New Zealand, Russia, Chile, and the Argentine Republic. The only wheat received in 1892, other than the American wheat before

noted, was one cargo from the Argentine Republic. No wheat flour other than American was imported during the years under consideration.

EXCHANGE AND SHIPPING FACILITIES.

Exchange facilities are the same as throughout Great Britain. There are four banks at Falmouth.

We have capacious docks, where vessels of 22 feet draft can discharge at all tides direct into the warehouses on the wharf.

OBSTACLES TO TRADE.

American flour being mostly made from one class of wheat does not give such good results, so it is said, as when the wheats of different countries are blended (some kinds giving color, others strength and again others flavor). The obstacles to the extension of the trade are, perhaps, prejudice in favor of English flour and the difficulty in getting bran with American flour at certain seasons of the year, added to the keen competition of local millers.

TRADE OUTLOOK.

There does not, at present, appear to be good ground for anticipating a more extensive business in American flour in this district.

HOWARD FOX,
Consul.

FALMOUTH, *March 10, 1894.*

NEWCASTLE.

Only the highest grade of flour is used here.

The importations of American wheat and wheat flour and Indian corn into the Tyne for the years 1891, 1892, and 1893, from the official reports, were as follows:

Year.	Flour.	Wheat.	Maize.
	Tons.	*Quarters.*	*Quarters.*
1891	1,834	217,595	.....
1892	1,835	160,830	65,391
1893	3,497	228,861	61,481

The quantity from other countries (chiefly from the Baltic and Black Sea ports, India, and South America), from official reports, was as follows:

Year.	Flour.	Wheat.	Maize.
	Tons.	*Quarters.*	*Quarters.*
1891	4,136	37,067	.....
1892	1,448	62,614	17,494
1893	849	73,585	26,953

No suggestion can be offered as to the prospects for doing a more extensive business. There being no duty on wheat or wheat flour, or on any other breadstuffs, no obstacle exists to an extension of this trade here, which is very important and long established. Sources of supply and prices are well known to dealers in Great Britain, and the only question they consider is quality and cost to deliver here.

WM. S. CAMPBELL,
Consul.

NEWCASTLE, *February 15, 1894.*

GIBRALTAR.*

Since the beginning of the present year the importations of flour have already (April 2) reached 39,835 sacks of 140 pounds each, all arriving direct from New York by foreign steamships, chiefly by those belonging to the North German Lloyd Company. Considerable of these supplies of American flour has already been disposed of at retail to meet the local wants of this market, besides supplying the increased demands of the neighboring Spanish district.

The calls for American flour have also extended to Tetuan (Morocco), to which town 2,000 sacks have lately been forwarded, which is somewhat of a novelty.

The present ruling cheapness of flour in the United States, added to the very moderate rates of freight accepted by the German line steamships plying between New York and this port, permits importers to undersell foreign arrivals from England and France.

American supplies seem at this moment to control this market. It is therefore important for those interested in this trade with the United States (if they wish to continue it) that they should bestow every care and attention in the selection of the different kinds and descriptions of flour most suited and salable to avoid any complaints that may arise from difference in the quality of any particular mark or brand, as any discrepancy of the kind might prejudice in future the sale of the article in favor of British and French competition.

Only 1,500 bags of American wheat have been imported during the present year. They have lately arrived from New York on an order from a steam mill company established in a neighboring Spanish village, 3 miles distant from Gibraltar.

It is reported that supplies of Indian hard wheat may soon be expected to arrive at this port on orders from Spain, in which operations residents here are interested.

* This is supplementary to a report in answer to the "flour circular," which was printed in the March CONSULAR REPORTS, No. 162, p. 622.

It is evident that the Spanish district in the neighborhood of Gibraltar does not now produce sufficient wheat to meet the wants of its population; consequently recourse has to be had from time to time to foreign importations of wheat and flour in spite of the heavy duties levied thereon.

HORATIO J. SPRAGUE,
Consul.

GIBRALTAR, *April 2, 1894.*

No. 164——8.

MEXICO.

CHIHUAHUA.

The standard of living among wealthy people is very good, but with the poor or *peon* class it is very poor—in fact, it is the extremes of luxury and abject poverty.

The people here are ready to eat American flour, but the duties are prohibitive, being 10 cents per kilogram, or about 4 cents per pound. Adding to this first cost and freights, with exchange at 90 per cent, and American flour would cost nearly 15 cents (Mexican silver) per pound.

No American flour is used here. This district grows its own wheat and grinds its own flour. There are several flour mills of American manufacture, run and owned by Americans, making as good a grade of flour as can be made anywhere. These mills have a capacity of from 100 to 200 barrels daily, and they make all the flour used here.

As to questions regarding the quantity of flour and wheat introduced for the years ending June 30, 1891, 1892, and 1893, as far as I can ascertain there has not been a single pound from any country.

R. ANDERSON,
Vice-Consul.

CHIHUAHUA, *February 5, 1894.*

LA PAZ.

Although the population comprising this consular district does not at present exceed 30,000, the appreciation of first-class American flour is quite apparent, but under the existing high-rate tariff its importation is practically prohibited.

Domestic flour from the neighboring State of Sonora, and from the northern portion of this territory is now used entirely, but it is generally found to be coarse and of poor quality.

During the years 1891–'93 the importations of American flour have been too insignificant to furnish any statistical data; but the amount of domestic flour consumed, under a fair estimate, reaches from 150 to 200 tons per month.

Under the tariff of 1856 foreign flour of inferior quality paid $1 per barrel and first class paid $1.50 per barrel. This privilege was conceded only to this territory and the frontiers of the Republic; but when compari-

son is made with the present rates, which are about $10.66 per barrel, it can readily be perceived how American or other foreign flour is excluded.

There is not a flour mill within this district, and consequently no wheat is ever imported.

Monetary exchange is readily obtainable, and facilities for shipment by sea from the United States are good.

The only obstacle to the development of this trade is undoubtedly the high tariff, and unless this is altered there is no prospect for the extension of the market for American flour in this district.

JAS. VIOSCA,
Consul.

LA PAZ, *January 19, 1894.*

MATAMOROS.

STANDARD OF LIVING.

The only diet of the people up to a few years ago was corn and black beans, but owing to the drought (which has been prevailing in this district for four years) merchants were compelled to buy corn largely in American markets. The prices being high, with additional high freights, the people have taken to American wheat flour, which can be laid down here much more cheaply than corn. Still, corn is quite extensively imported and used.

QUALITY OF FLOUR USED.

The qualities of flour exclusively used in this market are: First patent "Royal," E. O. Standard Milling Company, St. Louis; first patent "Royal," Texas Star Flour Mills, Galveston; second patent "Eagle Steam," E. O. Standard Milling Company, St. Louis; second patent "ooo" Texas Star Flour Mills, Galveston; common "Princess," E. O. Standard Milling Company, St. Louis; common "oo," Texas Star Flour Mills, Galveston; and second common "No. 2," Texas Star Flour Mills, Galveston. White flours are preferred to dark ones, even though the latter may be stronger.

IMPORTS OF WHEAT AND FLOUR.

During the year ending June 30, 1891, there were 1,845,113 pounds of American flour imported; in 1892, 1,477,776 pounds; and in 1893, 1,721,411 pounds. These figures are for imports into Matamoros alone. No flour from any other country has been imported into this district.

EXCHANGE FACILITIES.

Merchants experience great difficulty in obtaining monetary exchange, bankers charging at present 90 per cent for American dollars, and, owing to the uncertainty of the silver market, do not even wish to issue exchange, as they have no outlet for their silver and claim that it is accumulating too fast in their vaults. Hides and other products are shipped in return for imports.

SHIPPING FACILITIES.

The shipping facilities in this section are very poor. Merchants have to depend upon a steamship company, whose steamers make a trip about every ten days. A steamer runs between New Orleans, Galveston, and Brazos Santiago. Goods have to be lightered at Brazos to Point Isabel, from which point they are taken by rail to Brownsville, a distance of 22 miles, then reloaded again and taken to the ferry, where they are loaded on flatboats and taken across the Rio Grande River into Mexico. The delivery of goods at this port after arriving at Brazos Santiago oftentimes consumes a week, which makes it very annoying to merchants, as they are never quite sure when they will receive their goods.

TRADE OBSTACLES AND OUTLOOK.

There is at present a project on foot to connect Brownsville and Corpus Christi, Tex., with a railroad line. The completion of this line would undoubtedly increase the American flour trade considerably, as railroad lines from this point would eventually be built connecting with the Mexican main lines, thus opening up a larger field for our breadstuffs. There are no other obstacles in the way of extending the American flour trade. Should railroads be built in this section I feel confident that we would control the Mexican flour trade, although, as I understand, a company has erected an extensive flour plant at Saltillo, Mexico. Still I think that we would have the bulk of the Mexican trade, as the production of cereals in Mexico is very limited.

The demoralized condition of financial affairs, together with the stagnation of the silver market, greatly interferes with establishing a firm basis, as importers are prevented from working freely, not having any certain margin upon which to make their calculations as long as the fluctuations of the currency continue. Still, the importation of American flour will continue, as there is no flour which meets the demand so readily as that produced in the United States, and, if prices continue as they have been, there seems to be no reason why flour from other countries should be imported into this district.

J. BIELENBERG,
Vice-Consul.

MATAMOROS, *January 20, 1894.*

MAZATLAN.

STANDARD OF LIVING.

As great poverty prevails throughout this district, the standard of living is very low. The high contributions levied on all works, manufactories, and agricultural products have compelled those with small capital to retire from business and the farmer to abandon his fields, thus throwing out of employment thousands of poor laborers, whose only way now of making a

living is by bringing firewood from the surrounding forests and selling all they can bring in a day at the low price of from 12 to 25 cents. Out of this pittance they have to pay their house rent and water bill and buy food for themselves and families.

It is a treat for the poor laborer to eat a piece of bread. Their substitute for it is the "tortilla," made of corn. The corn is soaked in water for a few hours, then it is ground to a fine paste on a "metate" (a sort of a mill made out of a curved stone, in the shape of an inclined plane). A little of the paste is taken into the hands and spread out in the shape of a pancake. This done, it is placed in the oven for a few seconds and the "tortilla" is ready to be eaten. Though bread is preferred, few houses—not even those of wealthy families—have done away entirely with the "tortilla."

QUALITY OF FLOUR USED.

In making bread American flour is preferred to any produced in this country, though Colima, Sonora, and Todos Santos manufacture a considerable quantity; the last-mentioned place successfully competes with California flour. The flour most used here is that of Colima and Sonora, it being cheaper than American flour.

AMERICAN FLOUR AND WHEAT.

Strange as it may seem, there is no account kept in the custom-house of the quality, description, or value of goods, wares, and merchandise imported into this port, except for the ensuing fiscal year. The other accounts are sent to Mexico to enable the bureau of statistics to prepare their reports. According to the general tariff, some goods go by measure, some by weight, and others by valuation, and all the information that we can derive at the custom-house is the amount of duty paid on the cargoes. I am therefore unable to give the statistics required. However, I was fortunate enough to see the records for the year ending June 30, 1893, from which I have taken the following figures giving the amount of flour and wheat imported from San Francisco during that year: Flour, 228,926 kilograms; wheat, 18,400 kilograms.

No flour is received here from other countries on account of the high rates of exchange, freight, and duties.

SHIPPING FACILITIES.

There are three monthly steamers from San Francisco to this port—two belonging to the Pacific Mail Steamship Company and one to the Pacific Coast Steamship Company—and several sailing vessels.

OBSTACLES TO TRADE.

The obstacles in the way of the extension of the trade in American flour are high exchange (the Mexican dollar being worth 51¾ cents), high freight rate ($10 per ton), and the enormous import duty of $97 per ton. A ton of flour costs merchants here $154, and they have to retail it for $180.

But for these obstacles the prospects of doing a more extensive business here in American flour would be good.

ARTHUR DE CIMA,
Vice-Consul.

MAZATLAN, *January 31, 1894.*

MEXICO.

There is no reason why the Mexican people should not be ready to eat American flour. Mexican flour, inferiorly milled, is consumed in this city to the extent of $2,200,000 annually. In 1892 the consumption amounted to $2,449,276.

Two kinds of flour are used to about the same extent in this section—*harina flor* (prime flour) and *granillo*, a brown or second grade.

The import duty on wheat is 5 cents per kilogram, and on flour 10 cents per kilogram.

Facilities for monetary exchange are not very extensive. There is much room for improvement. The rates of transportation and commission are higher than in the United States. Banks charge more for American exchange than any other, and offer none other for sale than New York. Spanish exchange is the cheapest and German the next cheapest. An American banking institution having correspondents in every important city of the United States would be desirable, and could do well in this city, and perhaps in other cities of this Republic.

The facilities for shipping from the United States to the city of Mexico are good, but the freight rates are not so favorable as from Europe. Steamship lines deliver European goods at Veracruz and Tampico from 10 to 25 per cent cheaper than similar goods are delivered from the United States.

The high duty is at present the only obstacle in the way of an extensive trade in American flour. There are no prospects for an increased consumption of American flour under the present circumstances. The duties are prohibitory. Mexican flour is selling at from 6 to 8 cents a pound.*

THO. T. CRITTENDEN,
Consul-General.

MEXICO, *January 5, 1894.*

PASO DEL NORTE.

STANDARD OF LIVING.

The standard of living in my consular district, except among a small percentage of the people, who constitute the better class, is not high. In some localities they use considerable American flour, and are ready to use more, provided it can be made cheap enough for them to purchase.

* The consul-general says that he could not obtain any information (no facts or statistics being published) to enable him to answer questions 4, 5, 6, 7, and 8.

QUALITY OF FLOUR USED.

The quality of the flour generally used is of the second or third class.

IMPORTS OF WHEAT AND FLOUR.

The quantity of American wheat and wheat flour imported into and consumed in this district in each of the last three years will be shown by the following tables:

American wheat imports at Paso del Norte during the three years ending June 30, 1893.

Year.	Quantity.		Value in Mexican silver.*
	Packages.	*Bushels.*	
1891	4,617	15,130	$10,637
1892	138	235	387
1893	856	2,665	2,030
Total	5,611	18,030	13,054

*Valued at 83.7 cents on January 1, 1891; at 75 cents on January 1, 1892; at 66.9 cents on October 1, 1892; at 65.6 cents on July 1, 1893, in American gold.

American wheat flour imports at Paso del Norte during the three years ending June 30, 1893.

Year.	Quantity.		Value in Mexican silver.
	Packages.	*Pounds.*	
1891	15,557	879,150	$26,436
1892	14,577	723,475	22,222
1893	16,277	871,290	24,169
Total	46,411	2,463,915	72,827

There were during this period no wheat or flour imported from other countries.

EXCHANGE FACILITIES.

The rates of exchange on principal American cities are very reasonable, and about the same as they are in different parts of the United States on the same points.

SHIPPING FACILITIES.

The facilities for shipping from the United States to this port are first class. El Paso, Tex., which is the United States port immediately opposite Paso del Norte, is reached by four railroads, viz, the Southern Pacific; Atchison, Topeka, and Santa Fé; Texas and Pacific; and Galveston, Harrisburg, and San Antonio. An international railroad bridge connects El Paso with Paso del Norte, and the Mexican Central Railroad extends from here to the city of Mexico.

DUTIES.

As the duty on wheat and wheat flour entering the "free zone"—a strip of country 12½ miles wide extending the full length of the Mexican fron-

tier—is but one-tenth of the duty on the same products imported into the interior, all of the American importation has been confined to the free zone. I therefore conclude that if the Mexican duties on these articles were less there would be more of them imported and consumed.

TRADE OUTLOOK.

The quantity of these products imported from the United States in the future will depend, as it has in the past, first, upon the seasons and Mexico's consequent ability to produce enough wheat for home consumption, and, second, upon the amount of duties levied by Mexico upon American breadstuffs.

THEODORE HUSTON,
Consul.

PASO DEL NORTE, *January 9, 1894.*

PIEDRAS NEGRAS.

STANDARD OF LIVING.

The poorer classes of the people of this part of Mexico have heretofore used mostly corn, preparing it in various ways for food, making, for instance, the "tortilla," "tamallis," hominy, etc. But the use of flour is spreading and gradually taking the place of corn, which has been almost the exclusive food for the lower classes.

The low grade of flour is the quality most used here.

IMPORTS OF FLOUR AND WHEAT.

The quantity of flour imported into this district in 1891, 1892, and 1893 amounted to about 5,000 barrels, 7,000 barrels, and 10,000 barrels, respectively. This wheat flour (all American) was consumed in only that part of the consular district known as the "free zone," which forms a belt about 12¼ miles back into the interior of Mexico from the Rio Grande. If this flour had gone beyond the free zone a higher duty would have had to be paid.

No wheat was imported at this point in the years 1891, 1892, and 1893.

EXCHANGE AND SHIPPING FACILITIES.

Importers of American flour sell their Mexican money for United States currency (gold, silver, or paper), with which they pay for their purchases.

Shipping from the United States to this port is by means of the railway, which gives reasonable satisfaction.

OBSTACLES TO TRADE.

The free zone in this district is the only territory in which American flour is sold, as the tariff is too high to admit of its sale beyond this zone.

There are no prospects for doing a more extensive business in American flour in this country as long as the high duties on flour exist.

There would be no trade or business whatever in American flour in this part of Mexico were it not for the free zone.

JESSE W. SPARKS,
*Consul.**

PIEDRAS NEGRAS, *February 10, 1894.*

SALTILLO.

The quality of flour most used is made from wheat produced in this consular district and ground here by American milling machinery. It is not practicable to import American wheat flour into this district on account of the very high import duties.

As to facilities for monetary exchange, drafts can be purchased on New York. The present rate of exchange is 82 per cent premium for gold.

Goods are shipped by rail via Laredo, Tex., and by steam to Tampico; thence by rail via the Monterey and Mexican Gulf and Mexican National railways.

The obstacles to increased American trade are the high import duties and freight rates.

My opinion is that unless American wheat and flour is placed on the free list there are no prospects for doing any business in American flour in this country. Excellent wheat and flour are produced here very cheaply.

JOHN WOESSNER,
Consul.

SALTILLO, *January 23, 1894.*

VERACRUZ.

The standard of living in this consular district is not very high. Fully three-fourths of the people use corn instead of wheat flour, and the other fourth use a medium grade of flour made at interior points in Mexico.

The quality of flour used is good, but will not compare with the best grades made in the United States.

There was no wheat flour or wheat imported during the years 1891–'93.

The facilities for monetary exchange are good in Veracruz, through which city all business of that nature is done by the whole of this consular district. The National Bank of Mexico and the Bank of London and Mexico each has a branch here, besides which many wholesale houses do a banking business.

*The consul acknowledges his indebtedness to Mr. John Cram, of the firm of J. Cram & Co., Piedras Negras, for much of his information.

The facilities for shipping from the United States to this port are good, the harbor being accessible to vessels of any draft.

The obstacles in the way of the extension of trade in American flour are home production and a prohibitive tariff. In my opinion, there are no prospects of doing any business in American flour, nor will there be any brought in, so long as the duty remains as high as at present. I believe, however, that were this duty removed American flour would sell readily at a small advance in price over the native product.

CHARLES SCHAEFER,
Consul.

VERACRUZ, *February 2, 1894.*

GUATEMALA.

Corn and wheat constitute the standard food of the people; they are ready to eat American flour. The best quality of American flour that is made upon the Pacific coast is in use.

The quantities of American flour imported during the calendar years 1891 and 1892 were 12,238,820 pounds and 14,454,955 pounds, respectively. Statistics for 1893 are not yet compiled. There are no statistics obtainable regarding the imports of wheat, which, if there are any, must be very insignificant.

American is the only flour imported.

The duty on American flour is $5.35 in silver or about $2.65 in gold per barrel. The duty on American wheat is 40 cents (gold) per 100 pounds. The duty is the same on flour and wheat from other countries.

The facilities for monetary exchange are very poor.

The shipping facilities at present are good, owing to the competition between the Pacific Mail Company and the North American Navigation Company.

The obstacles to trade are high duty, high rates of local freights, and high port charges. With no duty on wheat flour, and with other charges materially reduced, the consumption would easily be doubled. At present the consumption is increasing slowly.

D. LYNCH PRINGLE,
Consul-General.

GUATEMALA, *January 10, 1894.*

HONDURAS.

STANDARD OF LIVING.

The standard articles of food in this consular district, so far as bread products are concerned, are Indian corn and wheat flour. The common people prepare from Indian corn a kind of cake called "tortilla," which is the "staff of life" for them. Bread made of wheat flour—which a few years ago was almost unknown—is rapidly increasing in use among all classes of the people. They are not only ready to eat American flour, but they have been eating it, and will continue to do so.

QUALITY OF FLOUR USED.

The quality of flour used ranges from medium to first class, and very little, if any, poor quality is used.

IMPORTS OF FLOUR.

I am entirely unable to answer these questions, because of the lack of statistics, but some estimates may be had later from the various consular agencies in this district, to which I have sent copies of the circular requesting reports. The quantity, I should judge, has been quite considerable for the population of the country. I think that nearly or quite all the flour imported into Honduras comes from the United States.

DUTIES.

American wheat flour is admitted free of duty, but there are some port charges which are nominal. There is no discrimination, wheat flour from any country being free of duty.

American wheat is not imported into this district, as there is not a flour mill in the Republic. Wheat is not even mentioned in the tariff laws.

EXCHANGE AND SHIPPING FACILITIES.

The facilities for monetary exchange are not very good. There is a bank at this capital, but it has not established arrangements for exchange to any extent. Some of the merchants arrange their deposits in New York and San Francisco, but the greater part of exchange with the United States is effected through the various American mining companies doing business in the Republic.

This Republic has only one port on the Pacific side. Vessels plying between Panama and San Francisco touch regularly at this port. On the Atlantic side there are three ports of entry, viz, Puerto Cortez, Ceiba, and Truxillo, all of which are in direct communication with American ports.

OBSTACLES TO TRADE.

I know of no obstacles in the way of the extension of trade in American flour in this Republic. The main point for manufacturers of flour to observe is to present their wares, so to speak. Honduraneans are ready to trade with the United States in flour, as well as in everything else, if the manufacturers will cater to their peculiarities and tastes, pack their goods in such a manner that they can be transported, and give reasonable credits—at least as reasonable as other countries offer.

TRADE OUTLOOK.

Nearly or quite all the flour consumed in Honduras comes from the United States, and the extension of its use depends upon the slowly changing tastes of the natives, and the increase in the number of foreign residents. The consumption of flour is increasing, of course, but the increase is slow. If manufacturers would send commercial travelers to these countries—or rather more of them—who would personally present their wares, trade of all kinds could be increased.

JAMES J. PETERSON,
Consul.

TEGUCIGALPA, *March 6, 1894.*

BRITISH HONDURAS.

STANDARD OF LIVING.

The standard of living in this colony is not so high as in the United States, owing to the fact that nearly everything has to be imported, and most of it, especially in the line of meats, comes in cans. American flour is the only wheat flour used in this country, and is readily sold here.

QUALITY OF FLOUR USED.

Flour of all grades is imported, but that most used is a grade known as "Ration," which is supplied to laborers, and, with mess pork (American also), forms their staple food.

IMPORTS OF FLOUR AND WHEAT.

There were 12,101 barrels of American flour imported into this colony during the year ending June 30, 1891, 17,512 barrels in 1892, and 18,092 barrels in 1893.

No wheat flour is imported from any other country than the United States.

No wheat is imported into this country, as there are no mills.

DUTIES.

The import duty on flour is 25 cents per barrel.

If wheat were imported into this colony it would be subject to a duty of 10 per cent ad valorem.

There are no discriminating duties; goods of all classes from any country are admitted on payment of the duty.

EXCHANGE AND SHIPPING FACILITIES.

The only facilities for monetary exchange are by shipment of produce and specie, as there is no bank in the colony.

Shipments to this port from the United States are made either from New York, whence a regular line of steamships sail monthly direct, or from New Orleans, whence a subsidized line of steamships carrying the mails sail every Thursday.

TRADE OUTLOOK.

The trade in American flour can not be further extended here unless the population increases, as the supply is now fully equal to the demand.

JAMES LEITCH,
Consul.

BELIZE, *February 28, 1894.*

BOLIVIA.

The people of Bolivia are ready to eat American flour.

The flour most used is Chilean, but merchants and people alike prefer American flour.

The imports of American flour into Bolivia during the calendar years 1891, 1892, and 1893 amounted to 6,000, 7,200, and 4,650 quintals,* respectively. American wheat is not imported.

The imports of Chilean flour during the same years amounted to 38,815, 56,000, and 58,000 quintals, respectively.

Bolivian flour and wheat were received in this capital (La Paz) during the same years to the following amounts:

Year.	Flour.	Wheat.
	Quintals.	*Quintals.*
1891	11,584	4,540
1892	13,600	6,200
1893	14,200	6,325

The import duty on flour and wheat from all countries is as follows: Flour, 1.20 bolivianos† per quintal; wheat, 0.50 boliviano per quintal.

Monetary exchange is effected through drafts on London and Paris at ninety days sight.

Bolivia having no seaport, all foreign goods for this capital are received through the Peruvian port of Mollendo.

American flour could be sold here in large quantities to better advantage than Chilean flour, and at a price not less than 10 bolivianos ($4.65) per quintal.

GERARD ZALLES,
Acting Consul.

LA PAZ, *March 12, 1894.*

*1 quintal=101.61 pounds. †1 boliviano=46.5 cents.

CHILE.

TALCAHUANO.

Flour made from native wheat is used here, and neither flour nor wheat is imported.

Exchange is effected by bank drafts on London, and ships from New York arrive at this port regularly.

Chile being a wheat-growing country, the prospects for the introduction of foreign flour are not promising.

JOHN F. VAN INGEN,
Consul.

TALCAHUANO, *January 29, 1894.*
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COLOMBIA.

BARRANQUILLA.*

STANDARD OF LIVING.

Out of a population of 35,000 in this city probably not more than 3,000 eat wheat bread. The remainder use bread made of both corn and yuca. The former is called "bollo de maize," the latter "bollo de yuca." They are made by reducing the corn or yuca to a "maza" or pasty dough, wrapping this dough in corn husks, strongly tied with a string made from the bark of a tree, and boiling it thoroughly. Both are very nutritious. A single "bollo" is sold for a "cuartillo" (2½ cents). The masses are not ready to eat American flour. They are quite satisfied with their native bread, and I presume prefer it to wheaten bread, and they could not afford to make the change if they so desired. A "bollo" weighs a full half pound, and, of either corn or yuca, has, to the consumer, a satisfying power of at least 10 cents' worth of bread.

QUALITY OF FLOUR USED.

The "La Union" brand is most in use. This flour is said to be milled in the west and repacked and branded in New York. Marks "S," "T," and "M," are also imported. "S" and "T" are from New York mills, and "M" is from Ohio. None of this flour would rate A1 in our best home markets.

IMPORTS OF FLOUR.

From the examination of the steamship manifests I am able to give the quantity of flour imported, in sacks of 125 pounds each, as follows: In 1891, 15,149; 1892, 17,287; 1893, 25,815 sacks.

No American wheat is imported, and no flour or wheat is imported from other countries.

EXCHANGE FACILITIES.

Exchange facilities at present are not good. The whole financial system is in a deplorable condition. Exchange has fluctuated as much as 10 per cent in a single day. At present writing sight drafts are at 160 per cent premium—that is to say, an American gold dollar equals $2.60 of the paper currency here.

*Vice-Consul Pellet is indebted to the courtesy of the steamship lines plying between Barranquilla and New York for the statistics in his report.

Shipping facilities are good. The Atlas line has two steamers per month plying between New York and this port, the Prince line three, and the Spanish line one, with an occasional "tramp." Flour comes in sacks of 125 pounds each. Sometimes five 5-pound sacks are inclosed in a single sack, which facilitates trade among small dealers.

TRADE OUTLOOK.

There was a notable increase in the importation of flour during the years 1891, 1892, and 1893. I look upon this increase as due rather to the increase of population than a conversion of the poorer classes to wheaten bread.

I may add, in conclusion, that of the above specified importation of flour only a small part was consumed on the coast; the rest went to the interior. The increase in the consumption of wheaten bread has, however, been notable. When I came to this city twenty-eight years ago, there was not an established bakery in operation, and all the wheat bread for sale was made in three or four private houses. Now we have at least six bakeries.

E. P. PELLET,
Vice-Consul.

BARRANQUILLA, *January 16, 1894.*

CARTAGENA.

STANDARD OF LIVING.

It would not be fair to compare the standard of living in this district with that which prevails in the United States. The majority of the people here are not consumers of wheat bread, their standard food being "cassava" and "bollo." The "bollo" is a mixture of ground corn and water made into a pasty substance, wrapped in corn husks, and boiled. The "cassava" is the root of the yuca, dried, pounded in a large mortar, made into thin cakes, and baked. These, with rice, plantains, yams, and salt fish, constitute the principal food of the poor classes. Wheat bread is a luxury little known to them—not that they would not prefer it, but it is too expensive. The consumption of flour has, however, increased greatly during the past two years.

QUALITY OF FLOUR USED.

A superior quality of flour is used in this market. Low grades do not sell. Very little Western flour is seen here, nearly all coming from Maryland and Virginia. "La Union," "Bella Vista," "La Perla," and "La Escojida" brands are given the preference.

IMPORTS OF FLOUR AND WHEAT.

Statistics from the records of the custom-house show the exact quantity of flour imported into this consular district from the United States to have

been 10,452, 15,159, and 10,858 barrels during the years 1891, 1892, and 1893, respectively.

No wheat is imported into this district, and no flour from countries other than the United States.

EXCHANGE AND SHIPPING FACILITIES.

Exchange by drafts is readily obtained on New York. The true value of the currency (paper dollar) of this Republic, estimated in United States gold, is about 40 cents.

A direct line of steamships—the Atlas line—runs regularly every fortnight from New York to this port.

OBSTACLES TO TRADE.

The only obstacle to a more extensive trade in this article between the United States and Colombia is the present high duty (6¼ cents per kilogram). The people, I am confident, would prefer wheat bread if it could be brought within their means, but with flour at $28 to $30 per barrel and wages at $1 per day it becomes a luxury which only the wealthy, who live mainly in cities, can indulge in.

CLAYTON I. CROFT,
Consul.

CARTAGENA, *February 14, 1894.*

COLON.

The only flour imported and used in this consular district is American wheat flour of first and lower grades. The consumption is, however, not as general as could be desired by reason of the preference given by the natives (more especially those of the laboring class) to the yuca and other breadstuffs of the country.

The following may be taken as a fair average of the quantity of American wheat flour imported here during the periods named: Year ending June 30, 1891, 6,000 barrels; 1892, 4,800 barrels; 1893, 3,600 barrels.

No wheat is imported here.

The exchange in this market undergoes rapid fluctuations, United States gold being at present at 100 per cent premium in Colombian silver.

There is steam communication between this port and New York three times a month regularly, besides communication by occasional sailing vessels.

J. L. PEARCY,
Consul.

COLON, *January 19, 1894.*

MEDELLIN.

STANDARD OF LIVING.

This department, formerly the State of Antioquia, of which Medellin is the capital, contains a population of 463,667 inhabitants, according to the census of 1884, and is the richest and most prosperous portion of the Republic of Colombia.

The general standard of living is fairly good in the principal towns, but the use of wheat bread in the rural districts and among the poorer classes is very limited, a kind of bread made of Indian corn being generally preferred.

IMPORTS OF FLOUR AND WHEAT.

American flour is the only flour imported into this district. I have been unable to obtain trustworthy data as to the quantities imported in 1891 and 1892, but I estimate the quantity for the year ending June 30, 1893, at 24,000 sacks of 125 pounds each. This estimate is based upon information obtained from the principal importers.

No wheat is imported into Antioquia. Wheat is cultivated in Antioquia to a very limited extent in the vicinity of the town of Sonson, situated on a table-land about 100 miles to the southeast of Medellin, and about 3,000 feet above the sea level. The supply from this source, however, is probably under 1,000 sacks a year, and is very inferior in quality to American flour.

EXCHANGE AND SHIPPING FACILITIES.

Antioquia exports about $3,000,000 worth of gold a year, besides other products of minor importance, and drafts drawn on the gold remittances may at any time be obtained from the banks in this city, of which there are five.

Goods reach Medellin from abroad by way of the ports of Barranquilla or Cartagena and the Magdalena River.

TRADE OUTLOOK.

There are no obstacles in the way of the extension of trade in American flour. The trade is slowly increasing, and is susceptible of still further development.

THOMAS HERRAN,
Consul.

MEDELLIN, *February 22, 1894.*

PANAMA.

STANDARD OF LIVING.

The standard of living in this district (Isthmus of Panama) is fair, so far as the upper and middle classes are concerned, but leaves very much to be desired as regards the poorer classes.

The people of this district are not only ready to eat bread made of American wheat flour, but they have been eating it for nearly half a century, whenever they had the means for securing it. There are very good bakers here, and, everything being equal, they can, I dare say, furnish as good bread as can be made anywhere on the face of the globe. The French style of baking is in vogue here.

QUALITY OF FLOUR USED.

The quality of flour used is called "Superfine," and the name is about all there is superfine about it; yet it makes good bread when mixed with some New York flour. I use the expression "New York flour" as it is shipped from New York to Colon. Nine-tenths of the flour used here in Panama comes from California. It is shipped in sacks of 225 pounds. The flour shipped from New York is in barrels.

IMPORTS OF FLOUR FROM THE UNITED STATES.

There are no official statistics to establish the quantity imported, but from the Pacific Mail Steamship Company and the Panama Railroad I have secured reliable figures which indicate that 24,200 sacks of flour were imported during the fiscal year ending June 30, 1891, 25,388 sacks in 1892, and 26,250 sacks in 1893.

As will be seen, the monthly average is a little above 2,100 sacks.

As stated above, about one-tenth of this yearly quantity, or 2,600 sacks, comes from Colon by way of the Panama Railroad. I am told that this New York flour is mixed with the California flour to give the latter more consistency. The bread at Colon is better than that at Panama.

Flour sells here at $5 (United States gold) per 100 pounds.

There is no American wheat imported for use as a breadstuff, and no flour or wheat is imported from other countries.

DUTIES.

There is no duty on flour or wheat in the department of Panama. The duty on flour in other parts of Colombia is 5 cents (Colombian) per kilogram. The duties are the same for all nations.

MONETARY EXCHANGE.

The facilities for monetary exchange are plentiful and safe between the Isthmus and all parts of the world. Cable transfers are made almost daily.

At the present time, however, people are in dread of monetary exchange, owing to the great discount on Colombian currency. At this writing American gold and drafts are at a premium of 110 per cent. Under the circumstances people do not care about indulging in extensive monetary exchange, and all business is consequently reduced to a minimum. American gold, as well as American exchange, is preferred here by all classes.

The cause of the great discount is the same old story. Gold coins (*condors*) are seldom seen, and a silver currency (50-cent pieces of 0.835 fine) is the principal medium of exchange in the department of Panama. There is also the peso (100 cents) of 0.900 fine; but these are getting scarcer all the time. They are shipped abroad and never return.

SHIPPING FACILITIES.

The facilities for shipping from and to the United States are ample. Two lines of steamers, averaging together six trips per month each way, ply between San Francisco and this place. The lines are the Pacific Mail Steamship Company and the North American Navigation Company. The latter is a new line started by the merchants of San Francisco in opposition to the Pacific Mail, which for nearly forty years has had dictatorial sway over the rates of freight between San Francisco and all ports on the Pacific coast as far south as this.

OBSTACLES TO TRADE.

If there are any obstacles in the way of the extension of trade in American flour, they are the same as those found in the way of the extension of trade in all other American products; and those obstacles, so far as I can see, are all of our own making and seeking.

There is no natural reason at all why the American flour trade should not increase, since the field is as yet clear of any and all opposition. And in this particular the flour trade has advantages that other trades have not, inasmuch as Europe has no flour trade here, while its commercial emissaries are all over this land in quest of "fresh pastures" for their respective trades. These gentlemen all speak the Spanish language fluently, but among the very few commercial men sent by United States houses, quite a number do not speak the language at all, and thus are handicapped from the start and outwitted all the way through.

SUGGESTIONS.

Perhaps the best means to secure a more extensive business in American wheat flour on the Isthmus of Panama would be the establishment of a flouring mill in this city by citizens of the United States. Certain concessions could be obtained from the government of this department for this purpose. There is no instance on record, so far as I know, of the Colombian Government's ever having repudiated a concession, even though a change of government may have taken place by revolution. Moreover, it would prove fatal to the hopes that Chile is entertaining of supplying at some future day

all the Pacific coast from Valparaiso to this place with the flour needed, and would enable us to extend our market from this point south with greater facility. Chile is perfectly justified in entertaining the hope just referred to, having already a line of steamers of her own from Valparaiso to this port, superior in appointments to the American lines from California here. Moreover, the distance from Valparaiso to Panama is shorter than that from San Francisco to this place.

To-day, as above stated, all the flour consumed here comes from California and New York, and is disposed of by wholesalers to retailers at figures which do not allow the poorer classes to eat much wheat bread. Whether the quality of the flour be good, bad, or indifferent, the prices do not vary to any appreciable extent.

Two cable lines connect the isthmus with the United States and the world—one by way of Galveston, Tex., and the other by way of Kingston, Jamaica. All the news published by these lines is European. It is seldom that a dispatch is received from the United States, and, considering that the cable by the way of Galveston has its headquarters in New York, it is strange, indeed, that news from the United States is so very scarce. Moreover, all the employés here are English subjects, and yet, if I am rightly informed, the stock of the company is largely in the hands of American capitalists.

By furnishing the people here telegraphic market prices from the United States, as well as English prices, it is probable that the facilities for the extension of the market for wheat flour, as well as all other American products, would be greatly promoted.

VICTOR VIFQUAIN,
Consul-General.

PANAMA, *January 19, 1894.*

DUTCH GUIANA.

STANDARD OF LIVING.

The population of Surinam is composed of three distinct divisions, viz, (1) Europeans, exclusively Dutch; (2) British East Indians (composed of immigrant laborers), who eat rice and Indian oils; and (3) native negroes, whose food is plantains and fish.

The kinds of flour mostly used are bakers' extras, such as "St. Lawrence," "Knickerbocker," "Bismarck," and "Retriever" brands.

IMPORTS OF AMERICAN FLOUR.

During the three calendar years ending December 31, 1893, the imports of American flour amounted to 23,817, 24,695, and 25,049 barrels, respectively. American is the only flour imported. Wheat is not imported from any country.

SHIPPING FACILITIES.

Steamers and sailing vessels afford shipping facilities between Dutch Guiana and the United States. Flour is brought here principally by sailing vessels.

TRADE OUTLOOK.

The prospects are the same as they have been for the last ten years. The United States has the entire trade, and alterations in the system are impossible.

H. LOVEJOY,
Vice-Consul.

PARAMARIBO, *February 13, 1894.*
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ECUADOR.

GUAYAQUIL.

STANDARD OF LIVING.

The standard of living in the large cities of Ecuador, to which there is easy communication from this port, is about equal to that of any cities in the world. There is not a family in such cities, no matter what its class may be, that does not, to some extent, use bread every day. The very poorest class may not use bread at every meal, but will use it at least at one, and for the other meals the baked plantain is substituted, of which, of course, there is any quantity obtainable, and the cost of which is a trifle. In the country, on the farms, and in those villages with which communication is difficult, the plantain is used to a still larger extent. There is a bread baked of flour made from "yuca," which, when fresh, tastes very much like the bread from wheat flour. Here, as in all the large cities, no baking is done at home, and nothing like homemade bread is known, everything being bought from the regular bakers.

The bakers generally use the very best quality of flour, and the two best-selling brands are "La Corona" and "Pioneer," both from San Francisco.

EXCHANGE AND SHIPPING FACILITIES.

The facilities for monetary exchange with other countries are good. As the exports and imports of Ecuador are about equal, there is always a supply of foreign drafts on all the principal markets of the world. The premium on exchange depends upon the price of bar silver, that metal being the money standard of the country.

Nearly all the flour—in fact, it may be said all—imported from the United States is shipped from San Francisco by sailing vessels and steamers direct to this port. The time occupied by a sailing vessel in coming here from that port is from forty to fifty days, but they have arrived here in as short a time as twenty-eight days. By steamer the cargo would reach here in about twenty-five to thirty days, all depending on the connection made at Panama, where the cargo must be transferred from the American steamers to those running from Panama to Valparaiso and calling here en route.

The freight on flour by sailer from San Francisco is from $6 to $10 per ton; by steamer it is $7.50 per ton if over 100 tons, or $10 per ton on shipments under 100 tons; from New York per steamer, via Isthmus of Panama, the freight is one cent per pound.

IMPORTS OF WHEAT.

As will be noted from the table of importations given herewith, very little wheat is imported by Ecuador.

Imports of wheat flour and other breadstuffs into Ecuador.

From—	Wheat.	Wheat flour.	Corn flour.	Biscuits.	Total.
1890.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
Chile	107,382	1,013,183	.....	788	1,121,353
Colombia	.....	32,504	.....	.....	32,504
England	.....	354	23,835	9,237	33,426
France	.....	.....	147	9,528	9,675
Germany	.....	3,089	.....	23,813	26,902
Italy	.....	100	.....	.....	100
Peru	1,509	27,256	.....	1,227	29,992
United States	.....	6,282,154	35,412	11,892	6,329,458
Total	108,891	7,358,640	59,394	56,485	7,583,410
1891.					
Chile	14,957	997,716	.....	.....	1,012,643
Colombia	.....	4,048	.....	.....	4,048
England	.....	336	7,823	35,684	43,843
France	.....	180	409	1,410	1,999
Germany	.....	.....	103	34,742	34,845
Italy	.....	239	149	1,183	1,571
Peru	.....	48,206	.....	296	48,502
United States	13,992	5,587,090	25,342	16,445	5,642,869
Total	28,919	6,637,815	33,826	89,760	6,790,320
1892.					
Belgium	.....	.....	.....	2,323	2,323
Chile	190,471	2,558,998	.....	.....	2,749,469
England	.....	65	15,328	41,927	57,320
France	.....	58	282	4,956	5,296
Germany	.....	.....	.....	31,532	31,532
Italy	.....	11,357	.....	2,084	13,441
Peru	.....	60,614	9,271	466	70,351
Spain	.....	.....	.....	79	79
United States	14,476	4,655,475	9,882	20,926	4,700,759
Total	204,947	7,286,567	34,763	104,293	7,630,570
1893 (first 6 months).					
Chile	60,827	642,022	.....	.....	702,849
England	.....	.....	228	39,928	34,156
France	.....	.....	50	454	504
Germany	.....	.....	.....	9,063	9,063
Italy	.....	297	.....	.....	297
Peru	.....	70	7,865	.....	7,935
United States	972	3,537,474	19,072	11,805	3,569,323
Total	61,799	4,179,863	27,215	55,250	4,324,127

DUTIES.

The duty on flour of all kinds and from all countries is about 3½ cents per kilogram; on wheat the duty is about 1⅓ cents per kilogram.

AMERICAN VS. CHILEAN FLOUR.

From the table given above it will be noted that about 80 per cent of all the flour imported comes from the United States, and the only manner in

which this trade could be increased is, of course, by an increase of population here, and when better facilities are established for transporting flour from here to the interior. Wheat is grown in the higher and cooler regions of the interior, and flour milled therefrom is of a fair quality. Only enough, however, is produced to supply the wants of the country immediately surrounding the wheat-growing district, as it costs more to bring flour from the interior to the coast on mule back than from San Francisco here.

The only reason Chilean flour is used here at all is because it is sold cheaper and delivered sooner, *i. e.*, taking less time to come here. A quintal (100 pounds) of Chilean flour, duty and all expenses paid, sells for what is equal to $3.80 in American gold, while American flour sells at $4.50. The Chilean flour is certainly inferior to the American, and the freight is, of course, less from Chile than from the United States.

The manner in which more American flour could be placed here would be by offering a little inferior grade of flour, say of the same quality as the Chilean, so as to sell here at the same price, or at a trifle less than the flour from that country. It is said, however, by all importers, that the Chilean will keep longer. They believe that this is due to the manner in which the wheat is ground, as the Chilean flour seems to be of a coarser grain. The bread made from American flour is much whiter than, and far superior to, that made from Chilean flour.

It might be noted that formerly the Chilean flour supplied this market almost exclusively, but the American product has almost entirely superseded it. The sole explanation is found in the superiority of the American flour.

In the exportation of biscuits to this country the United States, as will be seen, is far behind England and Germany. The English biscuit is sold here much cheaper than the American, and the German cheaper than the English. It is said here that the American biscuit seems to smell and taste too much of the lard used in its making. The manner in which the European biscuits are packed also recommends them to the trade. The fancy one-pound and half-pound tins, with patent tin-foil cover, readily opened with a penknife, sell in large quantities and are very convenient. One of these tins, containing half a pound net of biscuits, sells for about 22 cents.

GEO. G. DILLARD,
Consul-General.

GUAYAQUIL, *January 24, 1894.*

FALKLAND ISLANDS.

The people of these islands are ready to eat American flour. That which they now consume comes from Chile.

No American flour is imported into the Falkland Islands. During the three years ending June 30, 1893, 5,935 bags of 100 pounds each of Chilean flour were imported.

Wheat is not imported.

Monetary transactions are conducted by bills of exchange and money orders.

Shipping facilities are good via Great Britain. Sailing vessels come here direct.

The prospects for the introduction of American flour are good, if it is effected by enterprising Americans.

HENRY S. LASAR,
Consul.

PORT STANLEY, *February 20, 1894.*

PERU.

CHICLAYO.

American flour is only exceptionally consumed in this district, as, for example, during the Chilean civil war. The flour consumed here is entirely from Lima, milled from Chilean wheat, the yearly consumption in this district being 3,000,000 pounds.

The quantity of American flour imported into this district in 1892 amounted to 70,000 pounds.

Bills can be procured for remittances.

The high freights from New York and San Francisco make shipping more difficult, and competition with Chile almost impossible; besides, the high duty on flour favors the importation of wheat so as to protect Lima milling interests.

Until the obstacles mentioned are removed little or no business can be done in American flour.

ALFRED SOLF,
Consular Agent.

CHICLAYO, *March 4, 1894.*

VENEZUELA.

CORO.

STANDARD OF LIVING.

The standard of living, judged by that which prevails in the United States, is not high in this district.

Indian corn is the principal food product. The working classes find in this grain satisfactory nutrition at a low cost; the higher classes prefer American wheat flour, but the high duty it has to pay prevents its greater consumption. The duty is more than the original cost of the flour.

IMPORTS OF FLOUR AND WHEAT.

American wheat flour is the only flour imported into this agency. I can not report the exact quantity imported, because the custom-house at this port has not the statistics. Approximately, 3,000 barrels of wheat flour are consumed in this state (Falcon) per annum.

Wheat is not imported.

EXCHANGE AND SHIPPING FACILITIES.

The commerce of this district has its principal seat here in Coro, and has all the facilities of exchange with New York, whence we receive all the American products used here, exporting goatskins in return. Coffee was formerly exported from this agency to the United States, but, owing to the nonacceptance by Venezuela of reciprocity, this product now goes to Europe. Every ten days we are in connection with New York by the Red D line, whose steamers call at Curaçao and there transship cargo and mail for Coro.

TRADE OUTLOOK.

The only obstacle I see in the way of extending trade in American flour is the high duty. There is no doubt if the people could eat a cheap flour bread a larger business would be done in American flour.

JOSIAH L. SENIOR,
Consular Agent.

CORO, *February 7, 1894.*

LA GUAYRA.

STANDARD OF LIVING.

The standard of living compares poorly with that of the working classes of the United States. Only the wealthier class eat wheat bread for daily food.

The people are ready to eat American flour, but its high price places it out of the reach of the common and poor people. The poor eat corn cake and "cassava," the latter being made from flour obtained from the root of the yuca plant, which has scarcely any nourishing qualities, and is a poor substitute for wheat bread. The principal bread for the poorer class is made of soaked corn, which is ground into paste. Large quantities of corn are brought here from the United States and ground into meal for the people, but the principal part of the corn is of native production.

QUALITY OF FLOUR USED.

The quality of flour used is very good, and the most of it is made from wheat grown in the United States.

Imports of American flour into La Guayra and agencies.

Imported into—	1891.	1892.	1893.
	Barrels.	*Barrels.*	*Barrels.*
La Guayra	89,200	93,200	110,661
Ciudad Bolivar	12,000	11,000	13,000
Carupano	4,328	3,482	4,564
Cumana	3,100	2,800	3,860
Barcelona	1,100	980	2,800
Total	109,728	111,462	134,185

Flour other than American is not imported into this district.

There is no wheat brought to this part of Venezuela from the United States.

DUTIES AND PRICES.

The import duty on all wheat flour coming from the United States or any other country is 5 cents per kilogram (2¼ pounds), plus 12½ per cent internal revenue, the latter being collected at the same time. For example, a whole barrel has a gross weight of 212 pounds, or about 97 kilograms, which, at 25 cents Venezuelan (about 5 cents United States), plus 12½ per cent, amounts to 27.28 bolivars, or $5.25 (United States gold). To this add the first cost of the flour in New York, the commission, freight, and landing charges, and a barrel of good flour is found to cost, laid down in storehouse in La Guayra, about $10 (United States); in Ciudad Bolivar, about $12; and at Carupano, Cumana, and Barcelona, a little less than at Ciudad Bolivar. The selling price at Ciudad Bolivar, Carupano, Cumana, and Barcelona is about $13; at La Guayra, about $10.60; and at Caracas, about $11 per

barrel. At all points in the interior not reached by railroad it is very much higher. I am informed that the price at some of the interior cities is more than $20 per barrel.

Most all the flour is brought here in bags, as the difference in weight of a barrel and a bag is about 5 kilograms, which is quite a saving, since duty is charged on the gross weight.

There are no flour mills in this district. There used to be one at La Guayra, with a daily capacity of from 40 to 50 barrels. Wheat was then admitted free of duty. There is now a duty of a little less than one cent per pound on all wheat. No wheat is grown in this part of Venezuela.

EXCHANGE AND SHIPPING FACILITIES.

The facilities for monetary exchange are quite good, but were better when Venezuelan coffee was sold in the United States.

The facilities for shipping flour are good, as there are three lines of steamships from New York to Venezuelan ports.

OBSTACLES TO TRADE.

The great obstacle in the way of extension of trade is the high price, which is largely due to the very high duty. It is my opinion, the opinion of the consular agents, and of the leading importers in Venezuela, that more than double the amount of American flour would be consumed by the people of Venezuela every year if the price was lowered $2 to $3 per barrel, which could be done by reducing the import duty say 50 per cent, which would place this wholesome necessary of life within the reach of thousands of working people, to whom the taste of wheat bread is now unknown, and this great increase in consumption of flour would, it is thought, cause no decrease in Venezuela's total revenue.

It is my opinion, and that of most importers here, that some satisfactory arrangement could be made which would cause the above reductions.

It will be seen by the above statistics that, in spite of existing hindrances and the fact that there has been a decrease in the trade on some lines of American goods, there is still a steady increase in the demand for American flour in this district.

PHILIP C. HANNA,
Consul.

LA GUAYRA, *March 4, 1894.*

MARACAIBO.

STANDARD OF LIVING.

The standard of living, as compared with that which prevails in the United States, is not high. Plantains and maize constitute the standard food of the people generally, but American flour is largely consumed.

QUALITY OF FLOUR USED.

The quality consumed is a "fair" grade of American flour exclusively. The best brands are not imported.

IMPORTS OF FLOUR AND WHEAT.

Exact statistics of the imports into this district are not available, but the yearly change in the amount imported has been slight. A fair average would be 120,000 barrels per annum.

Only a few bags of wheat for seed in the mountain districts are imported.

All the flour and wheat imported are American.

DUTIES.

The import duty on wheat flour is 5 cents per kilogram, gross weight, and on wheat 2 cents per kilogram, gross weight.

EXCHANGE AND SHIPPING FACILITIES.

Although exchange with the United States is not a recognized business, it is possible to buy drafts on New York, as all the large mercantile houses of this district are in close relations with correspondents in that city. I say "possible," as it is by no means always certain, and there is no doubt that trade would be benefited by a better and more certain system of exchange.

The shipping facilities are excellent. The Red D line from New York has always given good service, augmenting transportation facilities as may be necessary. American sailing vessels may also be chartered direct to Maracaibo.

OBSTACLES TO TRADE.

On the coast there are no obstacles to trade, but in the Cordillera region, in the State of Los Andes, wheat is a staple product, and flour, though of poor quality, is produced to a certain extent.

TRADE OUTLOOK.

The prospects for the extension of business depend, in my opinion, upon three points—(1) increase of population, (2) improvement in the pecuniary condition of the masses, and (3) progress of culture and refinement through increased relations with the outside world.

We have nothing to fear in this branch of trade from foreign competition, and the natural increase in the consumption of flour, should the country remain tranquil, must be all in our favor.

A serious and standing obstacle to a rapid increase in the imports of flour is the great difference between the selling price at New York and the cost here, caused primarily by the duties imposed and by the incidental expenses of freight and handling, in addition to the large percentage of profits sought by the importers and dealers.

I have seen flour sold at Maracaibo for $20 (United States money) per barrel, which in New York did not cost more than $4, and from $13 to $15

is considered a reasonable average price. This flour, it will be remembered, is by no means a choice brand, and the light, sweet, palatable bread to be found universally in the United States and Europe is unknown here. To a great extent, however, this is the fault of the bakers, as even with the flour in use a much better bread could be furnished; and should the aërating or some other improved process be adopted, the better quality of the product might lead to a greater consumption of bread, and, consequently, a larger importation of flour.

As we already have the monopoly of this trade, I do not see that our exporters could do anything to extend it, as this extension could only be brought about by increased consumption here.

E. H. PLUMACHER,
Consul.

MARACAIBO, *March 22, 1894.*

PUERTO CABELLO.

The standard of living in this district is good, and the people consume only American flour of the best quality.

The following imports of flour (in bags of 100 pounds each) into this port are reported for the years ending June 30: In 1891, 75,000; in 1892, 90,000; in 1893, 120,000.

There is no wheat imported from any country, nor wheat flour, except from the United States.

Facilities for monetary exchange are confined to the merchants.

The facilities for shipping from the United States are very good. The Red D line of steamships makes this port from New York every eight days laden with American products. A Dutch line of steamers also arrives in this harbor once a month with cargoes from the United States; besides, we have arrivals of sailing vessels.

The principal obstacle in the way of an increase of trade in American wheat flour is the very high duty. Nevertheless the trade increases, and the prospects for doing a more extensive business are good.

WILLIAM G. RILEY,
Consul.

PUERTO CABELLO, *January 24, 1894.*

SAN CRISTOBAL.

STANDARD OF LIVING.

The general standard of living in this district is only fair. This district being essentially agricultural, the greatest part of its inhabitants raise what they need for consumption—that is to say, potatoes, rice, tapioca, pease, wheat, etc. They are very modest in living, and only the inhabitants of the

few small villages are willing to spend money for imported provisions. The climate in some parts permits the cultivation of wheat, and the wheat consumption of the district might be supplied by its own product were it not for the fact that the local mills are of a very primitive style, unfit to produce good flour. Notwithstanding its high price in comparison with the native flour, American wheat flour is introduced in some quantity. Native flour is generally mixed with American in order to render the bread cheaper, but, of course, bread made of pure American flour is preferred.

QUALITY OF FLOUR USED.

Besides the very ordinary native flour, only good American flour is used.

IMPORTS OF FLOUR AND WHEAT.

There are no official data of any kind to be obtained here concerning importations, and all foreign goods reach here through Maracaibo, so that the imports at that place cover the amounts consumed here. I estimate the consumption of American flour in this district for the years 1891, 1892, and 1893 as follows: In 1891, 25,000 bags; in 1892, 25,000 bags; in 1893, 30,000 bags.

No wheat flour is imported from any other country than the United States.

Save a few bags for seed, wheat is not imported into this district.

EXCHANGE FACILITIES.

Bills of exchange are always easily obtained from the export houses at a very small premium or none at all.

OBSTACLES TO TRADE.

American flour is without any competition from the product of other countries, so that there are no obstacles to the extension of the trade save its high price, which limits its consumption.

In my opinion, as long as the high prices of coffee (the principal export) last, people here will not think of improving their mills, and thus American wheat flour will be without competition, even of the native flour, which is only consumed by those who can not afford to buy the better American grades.

J. A. LALLEMANT,
Consular Agent.

SAN CRISTOBAL, *January 31, 1894.*

WEST INDIES.

ANTIGUA.

STANDARD OF LIVING.

The standard of living in this district is low. Most of the flour imported is of the lower grades.

IMPORTS OF FLOUR AND WHEAT.

For the years 1891, 1892, and 1893 the quantities of American flour imported amounted to 28,195, 36,298, and 32,500 barrels, respectively. The figures for 1893 are partly estimated.

No wheat is imported, and little flour other than that imported from the United States; 3,500 barrels will cover the importation from other sources for the years mentioned.

EXCHANGE AND SHIPPING FACILITIES.

There is a branch of the Colonial Bank in Antigua where drafts may be had on New York or London.

The Quebec Steamship Company's vessels come here direct from New York, stopping at the different islands, at frequent intervals.

DUTIES.

The import duty is 84 cents per barrel, with an additional trade tax of 10 cents per barrel. The same applies to flour coming from other sources.

TRADE OUTLOOK.

The demand depends somewhat on the price of flour, as well as on the conditions prevailing here. At present there is no reason to anticipate any particular change in the trade.

JAMES C. FOX,

ANTIGUA, *February 7, 1894.* *Consul.*

BAHAMAS.

STANDARD OF LIVING.

The standard of living in this colony is not very high, owing to the fact that the people, as a rule, are poor. Among the few who are possessed of means the standard is higher, of course. They are all ready to eat, and do consume a fair quantity of, American flour.

QUALITY OF FLOUR USED.

What is known as numbers 0 and 1 are used by bakers and moderately by others. The quality most used is No. 2. The very poor people use No. 3. No. 0 retails at, say, $8 per barrel, No. 1 at $7, No. 2 at $6, and No. 3 at $5.50.

IMPORTS OF WHEAT AND FLOUR.

I can not give statistics for years ending on June 30, but during the calendar year ending December 31, 1890, there were imported 34,087 barrels of American wheat flour, entered at a valuation of $144,423.08; during the year 1891, 27,561 barrels, valued at $126,497; and during the year 1892, 35,873 barrels, valued at $135,107.10.

No wheat flour worth mentioning is ever imported from any country except the United States.

No wheat is imported from any country other than the United States.

DUTIES.

The import duty on American wheat flour is 60 cents per barrel, and 10 per cent ad valorem in addition. The import duty on American wheat is 20 per cent ad valorem. No discrimination is made in duties between different countries.

EXCHANGE AND SHIPPING FACILITIES.

Facilities for monetary exchange are good. A good bank sells exchange at moderate premium on New York and London, and offers all customary banking accommodations.

Shipping facilities from the United States are good. Three steamers leave New York for this port and return during each month. The time of passage is from three and a half to five days. Occasional sailing vessels are also going to and fro between this port and several American ports.

OBSTACLES TO TRADE.

The only obstacle in the way of increasing the sale of American flour is that the present demand for flour is fully supplied.

TRADE OUTLOOK.

I do not see any prospect for an immediate increase in the trade in American flour. The colony is a small one, with a population of only about 50 000. Considerable corn is raised in the out islands, and upon the character of this crop each year depends, somewhat, the quantity of flour called for. When the season is a poor one more flour will be imported, and vice versa. As the population increases, more flour will be demanded; or, if the people become more prosperous, the demand for flour will be likely to increase. It is expected that a decided increase in colonial exports will occur very soon, owing to the fact that sisal hemp will soon be coming into the market in large quantities, and the profits from this industry will proba-

bly enable the colonists to live in a more generous manner than heretofore, and more flour will be consumed.

Whatever increase in the flour trade may be developed, it will all go to the United States, since we entirely control the trade at present. The colony is now taking all the flour it can use, or can afford to buy, and we furnish all of it, the trade being substantially in the hands of two large commission firms located in New York.

THOS. J. McLAIN,
Consul.

NASSAU, N. P., *December 29, 1893.*

BERMUDA.

The standard of living in this consular district is similar to that of our New England States. The quality of flour used ranges from medium to No. 1.

The quantity of American flour imported into this consular district during the calendar year ending December 31, 1893, amounted to 18,574 packages, and during the year 1892 to 19,121 packages. For the year 1893 the statistics have not yet been compiled, but I am informed that the probable result will be an increase over previous years.

There is no demand here for wheat except in a mixture of other products, when it is entered under the head of "feed," being classified as "feed" and intended for poultry.

The only other country from which wheat flour was imported was Canada, and was as follows: During the year ending December 31, 1891, 253 packages; 1892, 1,482 packages.

In answer to questions 9, 10, 11, and 12, I would say that there is no discrimination in duties as regards the country of production, the rate being uniformly 5 per cent ad valorem.

The facilities for monetary exchange comprise a public bank and two or three private banking institutions, all of which are conducted upon a sound system.

With the exception of sailing vessels, the only facilities at present offered for shipping from the United States are those provided by the Quebec Steamship Company, at New York.

At present there are no obstacles in the way of an extension of trade in American flour, unless it be possibly a fast decreasing competition on the part of Canada.

The demand for American flour being practically beyond competition, and the supplies now on hand being almost wholly the product of the United States, I can see no prospects for a more extensive trade in this line, unless through an increase in population.

Owing to several improvements of a public nature, now under consideration, it is predicted that in the course of a few years there will be a large increase in the commercial importance of these islands. For that reason it would be well for our manufacturers to maintain the hold which they at present possess on the trade of Bermuda.

Owing to the geographical position of these islands, our manufacturers are given an advantage which no other nation possesses. The inhabitants are almost wholly dependent upon the United States for food. Business here is conducted upon a safe basis and credit is remarkably good. Add to this the fact that there is no discrimination in duties and it will be seen that the American manufacturer starts off more than even and with everything in his favor in his trade intercourse with Bermuda.

JOHN H. GROUT, Jr.,
*Consul.**

HAMILTON, *January 3, 1894.*

CUBA.

BARACOA.

The standard of living in this district is good. All the flour consumed comes from the United States. Wheat is not imported into this district.

The imports of flour during the years 1891, 1892, and 1893 (years ending June 30) were 347,600 pounds, 650,436 pounds, and 690,110 pounds, respectively.

W. B. DICKEY,
Consul.

BARACOA, *January 12, 1894.*

CIENFUEGOS.

The standard of living is good, and the people are ready to eat American flour. The best quality of flour is most used.

The imports of wheat flour during the years ending June 30, 1891, 1892, and 1893, were as follows:

Kinds.	1891.	1892.	1893.*
	Sacks.	*Sacks.*	*Sacks.*
American (sacks of 185 pounds)	13,921	49,127	78,119
Spanish (sacks of 185 pounds)	46,008	18,500	.....

*From July 1 to December 31, 1893, 32,576 sacks of the same average weight as above were imported. The numbers given are official and were taken from the custom-house books.

Wheat is not imported.

There are three banking houses in Cienfuegos.

*The Consul at St. George's, Bermuda, reports that all the wheat flour consumed in his district is American.

Shipping facilities are good, steamers and sailing vessels plying from and to all seaports in the United States.

I know of no obstacles to American trade.

I can not see any prospects of an increased business in this line.

HENRY A. EHNINGER,
Consul.

CIENFUEGOS, *January 5, 1894.*

MATANZAS.

IMPORTS OF FLOUR AND WHEAT.

The quantities of wheat flour imported at this port for the three years ending June 30, 1893, were as follows:

Year.	From United States.	From Spain.
	Pounds.	*Pounds.*
1891	1,163,509	3,511,200
1892	3,692,406	1,574,135
1893	7,901,872	.....

No flour other than that from the United States was imported in 1893. Wheat is not imported into this district.

The great increase above noted is the result of the cheapening of the flour, and, in consequence, its more general consumption by the working classes. As we have the entire trade now, it follows that any further increase must arise from increased consumption. I believe this increase may yet be appreciable, but not to any great extent, although very little flour is used by the working classes in the interior.

ELIAS H. CHENEY,
Consul.

MATANZAS, *February 27, 1894.*

NUEVITAS.

The food of the people of this district consists of rice, flour, beef, pork, and vegetables. About 12,000 bags of East Indian rice of the cheapest grade are imported annually from Liverpool.

The imports of flour during the years 1891–'93 were as follows:

Description.	1891.	1892.	1893.
	Sacks.	*Sacks.*	*Sacks.*
American	6,200	12,000	20,670
Spanish	6,403	1,198	.....
Total	12,603	13,198	20,670

Wheat is not imported into this district.

Monetary exchange is effected through Havana drafts on American banks. The shipping facilities are ample—steam and sail.

RICHARD GIBBS,

NUEVITAS, *February 19, 1894.* *Commercial Agent.*

CURAÇAO.

The wheat flour used by the people here (Curaçao) is imported exclusively from the United States, and is of the ordinary grade. Shipments are made weekly from New York direct to this port by steamers and sailing vessels. The duty is 1¼ per cent ad valorem. The quantity imported can not be ascertained from the official statistics, as this article does not appear therein under a separate heading; but it can be safely estimated at about 12,000 barrels annually.

L. B. SMITH,

CURAÇAO, *February 23, 1894.* *Consul.*

JAMAICA.

STANDARD OF LIVING.

Owing to the poverty of the majority of the population of this island, the standard of living is not high, and sweet potatoes, yams, plantains, bananas, and breadfruit are used as a substitute for bread. This in part accounts for the fact that a population of nearly 700,000 consumes only 175,000 barrels of flour per annum.

QUALITY OF FLOUR USED.

The quality most used is a graded flour manufactured by the mills of New York city. It is well adapted to the climate, and no fault is found with it.

IMPORTS OF WHEAT AND FLOUR.

The United States furnish all of the wheat and more than 99 per cent of the wheat flour imported into this island. The following table gives the quantity of wheat and wheat flour imported here for the past three years ending the 30th of June of each year:

Year.	Wheat.	Wheat flour.		
	American.	American.	Other.	Total.
	Bushels.	*Barrels.*	*Barrels.*	*Barrels.*
1891	781	177,194	167	177,361
1892	1,478	171,294	1,458	172,752
1893	1,797	165,450	446	165,896

From these figures it will be seen that the people of Jamaica eat American wheat flour almost to the exclusion of that of every other country.

DUTIES.

There is no discrimination against American wheat flour or wheat, the duty on flour and wheat from all countries being the same—8*s.* ($1.94) per barrel of 196 pounds on flour and 6*d.* (12 cents) per bushel on wheat. There is only one flouring mill upon the island, and that is of such small capacity that it can hardly be dignified by the name. This being the case, it is unnecessary to say that some American capital might be well invested in the establishment of flouring mills here if the present rate of duty is to remain.

OBSTACLES TO TRADE.

The only obstacles in the way of the extension of trade in American flour known to me is the excessive duty, it being about 50 per cent ad valorem. If it were reduced one-half I am satisfied the consumption would be greater, because the cheaper the necessaries of life are the more they will be used. No other country can compete successfully with us for this trade. In 1891 and 1892 Canada made strenuous efforts to capture it, but, owing to freights, prices, etc., soon discovered her disadvantage.

SHIPPING FACILITIES.

The shipping facilities from the United States to this island are excellent. One steamship company runs regularly bimonthly and sometimes weekly steamers from New York to this port, while there are numerous "tramp" steamers. From the out ports on the north side of the island there is semi-weekly communication either with Boston, Baltimore, Philadelphia, or some other port. Sailing vessels are also constantly plying from this city and the out ports of the island to the principal ports of the United States.

Facilities for monetary exchange are also excellent.

Q. O. ECKFORD,
Consul.

KINGSTON, *January 15, 1894.*

SANTO DOMINGO.

STANDARD OF LIVING.

The standard of living in this district is not very high, as the people are in the main poor. To a certain extent American flour is a necessity.

QUALITY OF FLOUR USED.

Only a good quality of flour is salable. The favorite brands are "Crystal," "Two Cities," "Favorita," and "Preciosa."

IMPORTS OF FLOUR AND WHEAT.

The quantities of American wheat flour imported at this port and at the Monte Christi agency were as follows: In 1891, 12,471 barrels; in 1892, 10,364 barrels; and in 1893, 11,527 barrels.

No flour other than American is imported. Wheat is not imported.

DUTIES.

The duties on American flour amount to about $4.50 (Mexican) per barrel.

The Dominican tariff does not mention wheat, but as the reciprocity treaty declares free of duty rye, oats, and some other cereals, it is to be supposed that if imported it would be subject to an ad valorem duty.

Flour from other countries, if imported, would pay the same duty as that from the United States.

EXCHANGE AND SHIPPING FACILITIES.

The facilities for monetary exchange are poor. The principal crop of this district is tobacco, which is exported to Germany, and against this bills are drawn by merchants to pay their accounts in the United States. There is no bank in this district.

The facilities for shipping from the United States are good, a line of steamers from New York touching here about once in three weeks.

OBSTACLES TO TRADE.

The only obstacle to an increased trade is the fact that no more flour can be consumed. During some years, on account of dry weather, the crop of plantains falls short, and a large amount of flour and rice has to be imported. For the above reason I do not see any prospect for a more extensive business in American flour.

THOS. SIMPSON,
Consul.

PUERTO PLATA, *February 24, 1894.*

ST. CROIX.

CHRISTIANSTED.

The standard of living in this district is ordinary, the staple food of the country being American corn meal and wheat flour.

The flour most used is a medium quality.

The quantity of American wheat flour imported into this district during the years ending June 30, 1891, 1892, and 1893, was as follows:

Year.	From the United States.	From St. Thomas.*	From Halifax.	Total.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*
1891	815,995	11,899	234,023	1,061,917
1892	820,465	40,393	.....	860,858
1893	785,530	123,421	6,716	855,667
Total	2,361,990	175,713	240,739	2,778,442

* Principally American.

American wheat has never been imported into this district.

In my opinion there is no room for a more extensive trade in American flour.

A. J. BLACKWOOD,
Consular Agent.

CHRISTIANSTED, *January 28, 1894.*

FREDERICKSTED.

The quantity of American wheat flour imported in the years ending June 30, 1891, 1892, and 1893, was 996,000 pounds, 1,058,000 pounds, and 786,500 pounds, respectively, and the quantity of wheat flour imported from other countries during the same periods was as follows:

From—	1891.	1892.	1893.
	Pounds.	*Pounds.*	*Pounds.*
St. Thomas*	30,330	71,000	46,300
Other countries	706	.....	27,342

* Principally American flour.

No wheat from any country was imported in those years.

EXCHANGE AND SHIPPING FACILITIES.

The facilities for monetary exchange are the Colonial Bank and an agency of the Bank of St. Thomas, both having agencies in New York.

The facilities for shipping from the United States to this port are furnished by the Quebec Steamship Company—steamer twice a month—and frequent sailing vessels from New York.

WM. F. MOORE,
Consular Agent.

FREDERICKSTED, *January 15, 1894.*

ST. THOMAS.

QUALITY OF FLOUR USED.

The best quality of wheat flour, such as "Pearl Mills," is used.

The people are dependent on the United States for all farinaceous food.

IMPORTS OF FLOUR.

The statistics at the custom-house are made up on March 31 of each year. The following table gives the import of flour for the years ending on that date:

Description.	1891.	1892.	1893.
	Barrels.	*Barrels.*	*Barrels.*
American	16,722	12,243	13,255
Other	701	1,632	1,823
Total	17,423	13,875	15,078

During the same period there was no wheat imported.

DUTIES.

The import duty on all articles from all countries is 3 per cent.

EXCHANGE AND SHIPPING FACILITIES.

The Colonial Bank and the Bank of St. Thomas constitute the facilities for monetary exchange.

Frequent sailing vessels arrive here. The Quebec Steamship Company's steamers arrive irregularly. They are not to be depended on at any time.

TRADE OUTLOOK.

There are no obstacles in the way of the extension of trade in American flour in this market. The people are perfectly satisfied with American wheat flour.

About one-half of the imports mentioned from foreign countries were from St. Croix and of American production. When there is a scarcity of flour here (generally caused by several war vessels being in port) merchants have to order flour from St. Croix until they receive a fresh supply, which they quickly cable for.

In conclusion, I beg to state that no official statistics are procurable in reply to questions 3, 4, 5, 6, 7, and 8; but the figures given are authentic, having been furnished me by the superintendent of customs.

J. H. STEWART,
Consul.

ST. THOMAS, *January 10, 1894.*

TRINIDAD.

STANDARD OF LIVING.

The standard of living in Trinidad is probably not so high as that of the colored people of the Southern States. There are three distinct classes, in respect to food consumption, in this island. The first embraces the commercial and professional class and others who gain their livelihoods by manual labor, the second embraces negro laborers, and the third coolie laborers—East Indians and their descendants. The first class probably live as well as the corresponding class in the United States, the second like the negro laborers of our Southern States, but the third class (coolies, who compose about 35 per cent, or, say, 75,000, of the population of the island) put up with a much lower standard of living. The coolies use comparatively little flour, but live principally upon rice imported from India. As a rule they practice great economy, and rice, to which they have always been accustomed, is much cheaper than flour.

QUALITY OF FLOUR USED.

Several grades or brands of flour are imported here, and I think it probable the quality used will average as high as that in general use in the United States.

IMPORTS OF FLOUR AND RICE.

The custom-house entries are adjusted by calendar years, and the following table gives the imports of flour for 1891, 1892, and 1893:

Whence imported.	1891.	1892.	1893.
	Barrels.	*Barrels.*	*Barrels.*
United Kingdom	3	4	4
British East India	230	51	.....
British North America	157	1,973	1,220
British West Indies	410	282	790
United States	113,582	130,953	144,931
All other countries	2	.....	2
Total	114,324	133,263	146,955

The flour entered as from British West Indies is principally, if not exclusively, American flour reshipped.

The importations of rice amounted to 23,422,176, 22,079,290, and 23,776,654 pounds in 1891, 1892, and 1893, respectively.

DUTIES.

The custom-house duty on flour prior to January 9, 1892 (the day on which the tariff as readjusted to conform to the reciprocity agreement went into operation) was 3*s.* 4*d.* per barrel; after that date it was 3*s.* 1½*d.* per barrel. This decrease of custom-house duty was probably too slight to be of any appreciable assistance to flour in competing with rice—the duty on rice (2*s.* 2*d.* per 100 pounds) remaining unchanged.

TRADE OUTLOOK.

The increase of the flour trade comes more from an increase in the standard of living than from an increase of the population. The increase of the population of the island by immigration is principally due to the importation of laborers from India, and, of course, more favorably affects rice than flour importations.

American flour almost completely controls this market. For the last year or two considerable effort has been made to build up a trade in Canadian flour, and some little headway has been made, but the trade in American flour can not, it is believed, be checked by fair competition.

WM. P. PIERCE,

TRINIDAD, *March 22, 1894.* *Consul.*

TURKS ISLAND.

STANDARD OF LIVING.

The inhabitants of this district live principally upon corn meal, hominy, wheat flour, salted meats, and fish. Nine-tenths of the wheat flour consumed is imported from the United States. The cheapest quality of flour is mostly used.

IMPORTS OF FLOUR.

The quantities of American wheat flour imported into this district during the years ending June 30, 1891, 1892, and 1893, were:

Year.	Quantity.	Value.
	Barrels.	
1891	2,537	$12,193
1892	2,581½	10,807
1893	2,616	11,011

The following quantities of wheat flour were imported from other countries during the same years:

Imported from—	1891.		1892.		1893.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Barrels.		*Barrels.*		*Barrels.*	
Barbados	3	$18.58	.....	.....	6	$34.68
Demerara	.....	.....	4	$27.30	.....	.....
Guadeloupe	.....	.....	11	53.46	.....	.....
Halifax	20	118.34	150	703.06	120	587.20
Jamaica	17½	110.92	5	35.86	11	72.44
St. Thomas	.....	.....	6	26.46	.....	.....
Trinidad	5	25.00	.....	.....	4	20.00
Total	45½	272.84	176	846.14	141	714.32

No wheat is imported into Turks Island.

DUTIES.

The import duty on American wheat flour is 90 cents per barrel. There is no import duty on wheat. There is no discrimination in imposing duties here in favor of Great Britain, the import duties on articles coming from Great Britain being the same as on those imported from the United States.

EXCHANGE AND SHIPPING FACILITIES.

Having no established banks in this district, the facilities for monetary exchange are very limited. Persons importing from the United States can occasionally purchase bills of exchange from the merchants who ship salt to the United States. Post-office orders can only be purchased for Great Britain and Jamaica.

Wheat flour and other commodities can be shipped at New York for this district at intervals of about three weeks.

TRADE OUTLOOK.

Owing to the limited population of this district, the consumption of wheat flour is not likely to increase to any considerable extent. Almost all of the wheat flour consumed here is imported from the United States.

E. J. D. ASTWOOD,
Vice-Consul.

TURKS ISLAND, *January 25, 1894.*

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VALUES OF FOREIGN COINS.

The following statements show the valuation of foreign coins, as given by the Director of the United States Mint and published by the Secretary of the Treasury, in compliance with the first section of the act of March 3, 1873, viz: "That the value of foreign coins, as expressed in the money of account of the United States, shall be that of the pure metal of such coin of standard value," and that "the value of the standard coins in circulation of the various nations of the world shall be estimated annually by the Director of the Mint, and be proclaimed on the 1st day of January by the Secretary of the Treasury."

In compliance with the foregoing provisions of law, annual statements were issued by the Treasury Department, beginning with that issued on January 1, 1874, and ending with that issued on January 1, 1890. Since that date, in compliance with the act of October 1, 1890, these valuation statements have been issued quarterly, beginning with the statement issued on January 1, 1891.

These estimates "are to be taken (by customs officers) in computing the value of all foreign merchandise made out in any of said currencies, imported into the United States."

The following statements, running from January 1, 1874, to April 1, 1894, have been prepared to assist in computing the proper values in American money of the trade, prices, values, wages, etc., of and in foreign countries, as given in consular and other reports. The series of years are given so that computations may be made for each year in the proper money values of such year. In hurried computations, the reductions of foreign currencies into American currency, no matter for how many years, are too often made on the bases of latest valuations. When it is taken into account that the ruble of Russia, for instance, has fluctuated from 77.17 cents in 1874 to 37.2 cents in April, 1894, such computations are wholly misleading. All computations of values, trade, wages, prices, etc., of and in the "fluctuating-currency countries" should be made in the values of their currencies in each year up to and including 1890, and in the quarterly valuations thereafter.

To meet typographical requirements, the quotations for the years 1876, 1877, 1879, 1881, and 1882 are omitted, these years being selected as showing the least fluctuations when compared with years immediately preceding and following.

To save unnecessary repetition, the estimates of valuations are divided into three classes, viz: (A) countries with fixed currencies, (B) countries with fluctuating currencies, and (C) quarterly valuations of fluctuating currencies.

A.—Countries with fixed currencies.

Countries.	Standard.	Monetary unit.	Value in terms of United States gold.	Coins.
Argentine Republic*	Gold and silver	Peso	$0.96,5	Gold—Argentine ($4.82,4) and ½ Argentine; silver—peso and divisions.
Austria-Hungary†	Gold	Crown	.20,3	Gold—20 crowns ($4.05,2) and 10 crowns.
Belgium	Gold and silver	Franc	.19,3	Gold—10 and 20 franc pieces; silver—5 francs.
Brazil	Gold	Milreis	.54,6	Gold—5, 10, and 20 milreis; silver—½, 1, and 2 milreis.
Chile‡	Gold and silver	Peso	.91,2	Gold—escudo ($1.82,4), doubloon ($4.56,1), and condor ($9.12,8); silver—peso and divisions.
Cuba	do	do	.92,6	Gold—doubloon ($5.01,7); silver—peso.
Denmark	Gold	Crown	.26,8	Gold—10 and 20 crowns.
Egypt	do	Pound (100 piasters).	4.94,3	Gold—10, 20, 50, and 100 piasters; silver—1, 2, 10, and 20 piasters.
Finland	do	Mark	.19,3	Gold—10 and 20 marks ($1.93 and $3.85,9).
France	Gold and silver	Franc	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Germany	Gold	Mark	.23,8	Gold—5, 10, and 20 marks.
Great Britain	do	Pound sterling	4.86,6½	Gold—sovereign (pound sterling) and half sovereign.
Greece	Gold and silver	Drachma	.19,3	Gold—5, 10, 20, 50, and 100 drachmas; silver—5 drachmas.
Haiti	do	Gourde	.96,5	Silver—gourde.
Italy	do	Lira	.19,3	Gold—5, 10, 20, 50, and 100 lire; silver—5 lire.
Liberia	Gold	Dollar	1.00	
Netherlands‡	Gold and silver	Florin	.40,2	Gold—10 florins; silver—½, 1, and 2½ florins.
Portugal	Gold	Milreis	1.08	Gold—1, 2, 5, and 10 milreis.
Spain	Gold and silver	Peseta	.19,3	Gold—25 pesetas; silver—5 pesetas.
Sweden and Norway	Gold	Crown	.26,8	Gold—10 and 20 crowns.
Switzerland	Gold and silver	Franc	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Turkey	Gold	Piaster	.04,4	Gold—25, 50, 100, 200, and 500 piasters.
Venezuela	Gold and silver	Bolivar	.19,3	Gold—5, 10, 20, 50, and 100 bolivars; silver—5 bolivars.

* In 1874 and 1875 the gold standard prevailed in the Argentine Republic. Its currency does not appear in the statements again until 1883, when the double standard prevailed, and the peso attained a fixed value of 96.5 cents.

† On reference to the table of "fluctuating currencies," it will be seen that Austria had the silver standard up to and including the quarter ending July 1, 1892. The next quarter (October 1) inaugurated the gold standard (*see* note under table of "fluctuating currencies").

‡ The gold standard prevailed in Chile until January 1, 1890. The value of the peso has been the same under both standards.

‡ The Netherlands florin, as will be seen in the "fluctuating" table, became fixed in value (40.2 cents) in 1880.

B.—*Countries with fluctuating currencies, 1874–'90.*

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1874.	1875.	1878.	1880.	1883.	1884.
Austria-Hungary*.	Silver	Florin	$0.47,6	$0.45,3	$0.45,3	$0.41,3	$0.40,1	$0.39,8
Bolivia	do	Dollar until 1880; boliviano thereafter.	.96,5	.96,5	.96,5	.83,6	.81,2	.80,6
Central America	do	Peso	.96,5	.92,8	.92,8	.83,6	.....	.....
China	Silver	Haikwan tael	1.61	1.61	.....	.....	.....	.....
Colombia	do	Peso	.96,5	.96,5	.96,5	.83,6	.81,2	.80,6
Ecuador	do	do	.96,5	.92,8	.92,8	.83,6	.81,2	.80,6
Egypt†	Gold	Pound (100 piasters).	.....	.....	4.97,4	4.97,4	4.90	4.90
India	Silver	Rupee	.45,8	.43,6	.43,6	.39,7	.38,6	.38,3
Japan	Gold	Yen	.99,7	.99,7	.99,7	.99,7	.....	.....
	Silver		.....	.....	.....	.....	.87,6	.86,9
Mexico	do	Dollar	1.04,7½	.99,8	.99,8	.90,9	.88,2	.87,5
Netherlands‡	Gold and silver	Florin	.40,5	.38,5	.38,5	.40,2	.....	.....
Peru	Silver	Sol	.92,5	.91,8	.91,8	.83,6	.81,2	.80,6
Russia	do	Ruble	.77,17	.73,4	.73,4	.66,9	.65	.64,5
Tripoli	do	Mahbub of 20 piasters.	.87,09	.82,9	.82,9	.74,8	.73,3	.72,7

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1885.	1886.	1887.	1888.	1889.	1890.
Austria-Hungary*.	Silver	Florin	$0.39,3	$0.37,1	$0.35,9	$0.34,5	$0.33,6	$0.42
Bolivia	do	Dollar until 1880; boliviano thereafter.	.79,5	.75,1	.72,7	.69,9	.68	.85
Central America	do	Peso	.....	.....	.....	.69,9	.68	.85
Colombia	do	do	.79,5	.75,1	.72,7	.69,9	.68	.85
Ecuador	do	do	.79,5	.75,1	.72,7	.69,9	.68	.85
Egypt†	Gold	Pound (100 piasters).	4.90	4.90	4.94,3	4.94,3	4.94,3	4.93,3
India	Silver	Rupee	.37,8	.35,7	.34,6	.33,2	.32,3	.40,4
Japan	Gold	Yen	.....	.....	.99,7	.99,7	.99,7	.99,7
	Silver		.85,8	.81	.78,4	.75,3	.73,4	.91,7
Mexico	do	Dollar	.86,4	.81,6	.79	.75,9	.73,9	.92,3
Peru	Silver	Sol	.79,5	.75,1	.72,7	.69,9	.68	.85
Russia	do	Ruble	.63,6	.60,1	.58,2	.55,9	.54,4	.68
Tripoli	do	Mahbub of 20 piasters.	.71,7	.67,7	.65,6	.63	.61,4	.76,7

* The silver standard prevailed in Austria-Hungary up to 1892. The law of August 2 of that year (*see* CONSULAR REPORTS, No. 147, p. 623) established the gold standard.

† The Egyptian pound became fixed in value at $4.94,3 in 1887.

‡ The Netherlands florin fluctuated up to the year 1880, when it became fixed at 40.2 cents.

A.—*Countries with fixed currencies.*

Countries.	Standard.	Monetary unit.	Value in terms of United States gold.	Coins.
Argentine Republic*	Gold and silver	Peso	$0.96,5	Gold—Argentine ($4.82,4) and ⅕ Argentine; silver—peso and divisions.
Austria-Hungary†	Gold	Crown	.20,3	Gold—20 crowns ($4.05,2) and 10 crowns.
Belgium	Gold and silver	Franc	.19,3	Gold—10 and 20 franc pieces; silver—5 francs.
Brazil	Gold	Milreis	.54,6	Gold—5, 10, and 20 milreis; silver—½, 1, and 2 milreis.
Chile‡	Gold and silver	Peso	.91,2	Gold—escudo ($1.82,4), doubloon ($4.56,1), and condor ($9.12,8); silver—peso and divisions.
Cuba	do	do	.92,6	Gold—doubloon ($5.01,7); silver—peso.
Denmark	Gold	Crown	.26,8	Gold—10 and 20 crowns.
Egypt	do	Pound (100 piasters).	4.94,3	Gold—10, 20, 50, and 100 piasters; silver—1, 2, 10, and 20 piasters.
Finland	do	Mark	.19,3	Gold—10 and 20 marks ($1.93 and $3.85,9).
France	Gold and silver	Franc	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Germany	Gold	Mark	.23,8	Gold—5, 10, and 20 marks.
Great Britain	do	Pound sterling	4.86,6½	Gold—sovereign (pound sterling) and half sovereign.
Greece	Gold and silver	Drachma	.19,3	Gold—5, 10, 20, 50, and 100 drachmas; silver—5 drachmas.
Haiti	do	Gourde	.96,5	Silver—gourde.
Italy	do	Lira	.19,3	Gold—5, 10, 20, 50, and 100 lire; silver—5 lire.
Liberia	Gold	Dollar	1.00	
Netherlands‖	Gold and silver	Florin	.40,2	Gold—10 florins; silver—½, 1, and 2½ florins.
Portugal	Gold	Milreis	1.08	Gold—1, 2, 5, and 10 milreis.
Spain	Gold and silver	Peseta	.19,3	Gold—25 pesetas; silver—5 pesetas.
Sweden and Norway	Gold	Crown	.26,8	Gold—10 and 20 crowns.
Switzerland	Gold and silver	Franc	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Turkey	Gold	Piaster	.04,4	Gold—25, 50, 100, 200, and 500 piasters.
Venezuela	Gold and silver	Bolivar	.19,3	Gold—5, 10, 20, 50, and 100 bolivars; silver—5 bolivars.

* In 1874 and 1875 the gold standard prevailed in the Argentine Republic. Its currency does not appear in the statements again until 1883, when the double standard prevailed, and the peso attained a fixed value of 96.5 cents.

† On reference to the table of "fluctuating currencies," it will be seen that Austria had the silver standard up to and including the quarter ending July 1, 1892. The next quarter (October 1) inaugurated the gold standard (*see* note under table of "fluctuating currencies").

‡ The gold standard prevailed in Chile until January 1, 1890. The value of the peso has been the same under both standards.

‖ The Netherlands florin, as will be seen in the "fluctuating" table, became fixed in value (40.2 cents) in 1880.

FOREIGN WEIGHTS AND MEASURES.

The following table embraces only such weights and measures as are given from time to time in CONSULAR REPORTS and in Commercial Relations:

Foreign weights and measures, with American equivalents.

Denominations.	Where used.	American equivalent.
Almude	Portugal	4 422 gallons.
Ardeb	Egypt	7.6907 bushels.
Are	Metric	0.02471 acre.
Arobe	Paraguay	25 pounds.
Arratel or libra	Portugal	1.011 pounds.
Arroba (dry)	Argentine Republic	25.3175 pounds.
Do	Brazil	32.38 pounds.
Do	Cuba	25.3664 pounds.
Do	Portugal	32.38 pounds.
Do	Spain	25.36 pounds.
Do	Venezuela	25.4024 pounds.
Arroba (liquid)	Cuba, Spain, and Venezuela	4.263 gallons.
Arshine	Russia	28 inches.
Arshine (square)	do	5.44 square feet.
Artel	Morocco	1 12 pounds.
Baril	Argentine Republic and Mexico	20.0787 gallons.
Barrel	Malta (customs)	11.4 gallons.
Do	Spain (raisins)	100 pounds.
Berkovet	Russia	361.12 pounds.
Bongkal	India	832 grains.
Bouw	Sumatra	7,096.5 square meters.
Bu	Japan	0.1 inch.
Butt (wine)	Spain	140 gallons.
Caffiso	Malta	5.4 gallons.
Candy	India (Bombay)	529 pounds.
Do	India (Madras)	500 pounds.
Cantar	Morocco	113 pounds.
Do	Syria (Damascus)	575 pounds.
Do	Turkey	124.7036 pounds.
Cantaro (Cantar)	Malta	175 pounds.
Carga	Mexico and Salvador	300 pounds.
Catty	China	1 333⅓ (1⅓) pounds.
Do	Japan	1.31 pounds.
Do	Java, Siam, Malacca	1.35 pounds.
Do	Sumatra	2.12 pounds.
Centaro	Central America	4.2631 gallons.
Centner	Bremen and Brunswick	117.5 pounds.
Do	Darmstadt	110 24 pounds.
Do	Denmark and Norway	110.11 pounds.
Do	Nuremberg	112.43 pounds.
Do	Prussia	113.44 pounds.
Do	Sweden	93.7 pounds.
Do	Vienna	123.5 pounds.
Do	Zollverein	110.24 pounds.
Do	Double or metric	220.46 pounds.
Chih	China	14 inches.
Coyan	Sarawak	3,098 pounds.
Do	Siam (Koyan)	2,667 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivale
Cuadra	Argentine Republic	4.2 acres.
Do	Paraguay	78.9 yards.
Do	Paraguay (square)	8.077 square feet.
Do	Uruguay	Nearly 2 acres.
Cwt. (hundred weight)	British	112 pounds.
Desiatine	Russia	2.6997 acres.
Do	Spain	1.599 bushels.
Drachme	Greece	Half ounce.
Dun	Japan	1 inch.
Egyptian weights and measures	(*See* CONSULAR REPORTS No. 144.)	
Fanega (dry)	Central America	1.5745 bushels.
Do	Chile	2.575 bushels.
Do	Cuba	1.599 bushels.
Do	Mexico	1.54728 bushels.
Do	Morocco	Strike fanega, 70 full fanega, 118 lb
Do	Uruguay (double)	7.776 bushels.
Do	Uruguay (single)	3.888 bushels.
Do	Venezuela	1.599 bushels.
Fanega (liquid)	Spain	16 gallons.
Feddan	Egypt	1.03 acres.
Frail (raisins)	Spain	50 pounds.
Frasco	Argentine Republic	2.5096 quarts.
Do	Mexico	2.5 quarts.
Fuder	Luxemburg	264.17 gallons.
Garnice	Russian Poland	0.88 gallon.
Gram	Metric	15.432 grains.
Hectare	do	2.471 acres.
Hectoliters:		
Dry	do	2.838 bushels.
Liquid	do	26.417 gallons.
Joch	Austria-Hungary	1.422 acres.
Ken	Japan	4 yards.
Kilogram (kilo)	Metric	2.2046 pounds.
Kilometer	do	0.621376 mile.
Klafter	Russia	216 cubic feet.
Kota	Japan	5.13 bushels.
Korree	Russia	3.5 bushels.
Last	Belgium and Holland	85.134 bushels.
Do	England (dry malt)	82.52 bushels.
Do	Germany	2 metric tons (4 pounds).
Do	Prussia	112.29 bushels.
Do	Russian Poland	11¾ bushels.
Do	Spain (salt)	4,760 pounds.
League (land)	Paraguay	4,633 acres.
Li	China	2,115 feet.
Libra (pound)	Castilian	7,100 grains (troy).
Do	Argentine Republic	1.0127 pounds.
Do	Central America	1.043 pounds.
Do	Chile	1.014 pounds.
Do	Cuba	1.0161 pounds.
Do	Mexico	1.01465 pounds.
Do	Peru	1.0143 pounds.
Do	Portugal	1.011 pounds.
Do	Uruguay	1.0143 pounds.
Do	Venezuela	1.0161 pounds.
Liter	Metric	1.0567 quarts.
Livre (pound)	Greece	2.1 pounds.
Do	Guiana	1.0792 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalent.
Load	England (timber)	Square, 50 cubic feet; unhewn, 40 cubic feet; inch planks, 600 superficial feet.
Manzana	Costa Rica	1⅞ acres.
Marc	Bolivia	0.507 pound.
Maund	India	82⅔ pounds.
Meter	Metric	39.37 inches.
Mil	Denmark	4.68 miles
Do	Denmark (geographical)	4.61 miles.
Morgen	Prussia	0.63 acre.
Oke	Egypt	2.7225 pounds.
Do	Greece	2.84 pounds.
Do	Hungary	3.0817 pounds.
Do	Turkey	2.85428 pounds.
Do	Hungary and Wallachia	2.5 pints.
Pic	Egypt	21¼ inches.
Picul	Borneo and Celebes	135.64 pounds.
Do	China, Japan, and Sumatra	133⅓ pounds.
Do	Java	135.10 pounds.
Do	Philippine Islands (hemp)	139.45 pounds.
Do	Philippine Islands (sugar)	140 pounds.
Pie	Argentine Republic	0.9478 foot.
Do	Castilian	0.91407 foot.
Pik	Turkey	27.9 inches.
Pood	Russia	36.112 pounds.
Pund (pound)	Denmark and Sweden	1.102 pounds.
Quarter	Great Britain	8.252 bushels.
Do	London (coal)	36 bushels.
Quintals	Argentine Republic	101.42 pounds.
Do	Brazil	130.06 pounds.
Do	Castile, Chile, Mexico, and Peru	101.61 pounds.
Do	Greece	123.2 pounds.
Do	Newfoundland (fish)	112 pounds.
Do	Paraguay	100 pounds.
Do	Syria	125 pounds.
Rottle	Palestine	6 pounds.
Do	Syria	5¼ pounds.
Sagen	Russia	7 feet.
Salm	Malta	490 pounds.
Se	Japan	3.6 feet.
Seer	India	1 pound 13 ounces.
Shaku	Japan	10 inches.
Sho	do	1.6 quarts.
Standard (lumber)	England and Germany	165 cubic feet.
Suerte	Uruguay	2,700 cuadras (*see* cuadra).
Tael	Cochin-China	590.75 grains (troy).
Tan	Japan	0.25 acre.
To	do	2 pecks.
Ton	Space measure	40 cubic feet.
Tonde (cereals)	Denmark	3.94783 bushels.
Tondeland	do	1.36 acres.
Tsubo	Japan	6 feet square.
Tsun	China	1.41 inches.
Tunna	Sweden	4.5 bushels.
Tunnland	do	1.22 acres.
Vara	Argentine Republic	34.1208 inches.
Do	Castile	0.914117 yard.
Do	Central America	38.874 inches.
Do	Chile and Peru	33.367 inches.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalent.
Vara	Cuba	33.384 inches.
Do	Curaçao	33.375 inches.
Do	Mexico	33 inches.
Do	Paraguay	34 inches.
Do	Venezuela	33.384 inches.
Vedro	Russia	2.707 gallons.
Vergees	Isle of Jersey	71.1 square rods.
Verst	Russia	0.663 mile.
Vlocka	Russian Poland	41.98 acres.

METRIC WEIGHTS AND MEASURES.

Metric weights.

Milligram ($\frac{1}{1000}$ gram) equals 0.0154 grain.
Centigram($\frac{1}{100}$ gram) equals 0.1543 grain.
Decigram ($\frac{1}{10}$ gram) equals 1.5432 grains.
Gram equals 15.432 grains.
Decagram (10 grams) equals 0.3527 ounce.
Hectogram (100 grams) equals 3.5274 ounces.
Kilogram (1,000 grams) equals 2.2046 pounds.
Myriagram (10,000 grams) equals 22.046 pounds.
Quintal (100,000 grams) equals 220.46 pounds.
Millier or tonnea—ton (1,000,000 grams) equals 2,204.6 pounds.

Metric dry measure.

Millimeter ($\frac{1}{1000}$ liter) equals 0.061 cubic inch.
Centiliter ($\frac{1}{100}$ liter) equals 0.6102 cubic inch.
Deciliter ($\frac{1}{10}$ liter) equals 6.1022 cubic inches.
Liter equals 0.908 quart.
Decaliter (10 liters) equals 9.08 quarts.
Hectoliter (100 liters) equals 2.838 bushels.
Kiloliter (1,000 liters) equals 1.308 cubic yards.

Metric liquid measure.

Millimeter ($\frac{1}{1000}$ liter) equals 0.27 fluid ounce.
Centiliter ($\frac{1}{100}$ liter) equals 0.338 fluid ounce.
Deciliter ($\frac{1}{10}$ liter) equals 0.845 gill.
Liter equals 1.0567 quarts.
Decaliter (10 liters) equals 2.6417 gallons.
Hectoliter (100 liters) equals 26.417 gallons.
Kiloliter (100 liters) equals 264.17 gallons.

Metric measures of length.

Millimeter ($\frac{1}{1000}$ meter) equals 0.0394 inch.
Centimeter ($\frac{1}{100}$ meter) equals 0.3937 inch.
Decimeter ($\frac{1}{10}$ meter) equals 3.937 inches.
Meter equals 39.37 inches.

Decameter (10 meters) equals 393.7 inches.
Hectometer (100 meters) equals 328 feet 1 inch.
Kilometer (1,000 meters) equals 0.62137 mile (3,280 feet 10 inches).
Myriameter (1,000,000 meters) equals 6.2137 miles.

Metric surface measures.

Centare (1 square meter) equals 1,550 square inches.
Are (100 square meters) equals 119.6 square yards.
Hectare (10,000 square meters) equals 2.471 acres.

CONSULAR REPORTS.

COMMERCE, MANUFACTURES, ETC.

VOL. XLV. JUNE, 1894. No. 165.

SWISS LABOR STATISTICS.*

The latest annual report of the federal bureau of statistics shows the number of people employed in the different professional, commercial, and other pursuits in Switzerland.

Out of a population of 2,918,000 (census of 1888), we find 1,274,000 regularly employed. This is a large percentage, namely, 44 per cent, or nearly one-half of the entire population. When we consider that out of the total population 940,000 are children under 14, 271,000 over 14 and under 19, and 274,000 over 60 years of age, it will be plainly seen that nearly the entire number of the able-bodied are occupied earning their daily bread. Classing those of the ages from 15 to 19 and from 60 to 80 as able to follow a daily vocation, we find that only 955,000 people can be classified as non-workers, with 1,963,000 as active workers.

Thus we find 689,000 without employment. This, however, is not the case, for the federal statistics show 80,000 people employed as house servants and not classified among the professionals, because servants are supposed to make themselves useful in households only.

In Switzerland there are about 470,000 family households, of which 465,000 are married men, or heads of families, and 470,000 married women, and of the latter undoubtedly the greater part are superintending and taking care of their homes.

Suppose that out of these 470,000 married women one-half, *i. e.*, 235,000, do their own household work, then there would remain, after deducting these and the servants (80,000), only 374,000 persons without regular employment.

Undoubtedly many among the boys of the age of 15 to 19 and the men from 60 to 80 years are unable to fulfil the duties of their adopted trades or too old or infirm to pursue their professions any longer; further, there

* Translated from Neue Zuercher Zeitung.

are many among the middle-aged persons incapacitated to follow a daily vocation owing to sickness, accidents, or some other causes. But it can be plainly seen that but a small percentage of possible Swiss wage-earners can be classified as really unemployed. Among the 1,274,000 belonging to the working population, 882,000 are males and 392,000 females. As the entire population of Switzerland consists of 1,418,000 men and boys, and 1,500,000 women and girls, we find that of the former two-thirds, or 63 per cent, and of the latter, one-fourth, or 26 per cent, are following a regular occupation.

If we add the servants to the number of those employed, we find the percentage somewhat modified. There being about 80,000 servants, of whom 78,500 are females and 1,500 males, we get a total result of 883,000 men and 471,000 women—63 per cent, or two-thirds, of men, and 31 per cent, or one-third, of women employed.

The 1,274,000 people following regular trades have a family membership of about 1,563,000 behind them; therefore to each wage-earner there is a family membership of one and one-fourth deriving support from his wages. While among the employed the number of men is about twice that of women and girls, we find among the family membership an opposite result. There are in households 1,029,000 nonwage-earning women and 534,000 unemployed men.

Among the working population there are 100,000 foreigners, of whom 73,500 are males and 26,500 females, showing that the proportion of the latter to the working males is much smaller than is the case with the native population.

The classified labor of these 1,274,000 wage workers is as follows: Industries absorbing the greatest number (in round numbers), 528,000; agriculture, 492,000; commerce, 92,000; public administration, administration of justice, science, and arts, 51,000; commercial traffic, 48,000; capitalists and money-lenders, 15,000.

Out of 100 people of the total population. 37 earn their bread from the proceeds of agriculture, horticulture, and the raising of live stock.

If we segregate the different callings more carefully, we find that in addition to the persons employed on farms and gardens, the preparation of food and table luxuries occupies 44,000 people. In adding to the latter those for whom agriculture and general farming industries really play the greater part (with the exception of forestry and mining, giving employment to 1,000 people in round numbers) we get a grand total of 526,000.

There are occupied in the manufacture of textile fabrics, cloth, clothing, and millinery goods, 275,000; in the building of houses and the preparation and manufacture of building materials, 106,000; in manufacturing engines, machines, and tools, 82,000; in the chemical manufacturing of useful articles outside of food, 9,400; and on newspapers and by publishers of books, etc., 9,200.

Under the head of "commerce" are included those employed in—hotels, 30,000; boarding houses, 2,500; banking, brokerage, and insurance

business, 6,400; commerce proper, 53,000; public administration (except police and lawyers), 6,000; police administration, 3,000; lawyers, etc., 2,800; sanitary institutions, hospitals, etc., 10,000; clergymen of all denominations, 4,000; public and private instruction, 19,000; arts, 3,500.

EUGENE GERMAIN,
Consul.

ZURICH, *March 8, 1894.*

AUSTRALIAN TRADE AND FINANCE—1893.

The financial history of 1893 is, without exception, the gloomiest in the annals of Australia. Its disasters have been so numerous that the only surprise is that something like national insolvency did not follow. The troubles have not been confined to a single member of the group of colonies, but have been felt more or less acutely by all. The two years immediately preceding were marked by disasters considered at the time as unprecedented, but these, when compared with the experiences of the last year, are now regarded as insignificant. The one may be said to be the product of the other.

After the event we can trace back without much difficulty the causes which led up to such unfortunate results. From 1886 to 1890 the colonies were not only borrowing large sums on the public account, but using every practicable means to attract money privately from outside sources of supply. Banks, financial companies, and almost every class of institutions having monetary dealings offered tempting rates of interest to British investors, and so well were these responded to that the sums obtained at one period could not be profitably employed with safety. The fact that money thus obtained had to be utilized, necessitated risks being accepted and advances made on securities which, under normal conditions, would not have been entertained. Real estate was boomed to fictitious prices, and speculation in a hundred more objectionable directions assisted to increase the trouble laid up for the future.

No one appeared to recollect that the actual requirements for prudent trading and ordinary business matters could not expand unless the business production increased in either volume or value to support the expansion. As a fact exactly the opposite was going on; for, while the nonproducing element was being boomed upwards, the actual production was on the decrease, especially in the direction of values. That a collapse must follow was so certain that it now seems strange that it was not foreseen at the time. And yet the history of other communities affords numerous instances of a similar disregard or forgetfulness.

The present experience has been bought at a heavy price, but still there are compensating features which do not deprive us of the hope that they may in the end be turned to profitable account. As long as the community

thought they could grow rich by speculation, the hard work required to develop local resources was avoided; but now the necessity has arisen to increase production so as to meet their liabilities, and the task has been taken up with an energy that promises success. Granted that the troubles have been largely increased by the low prices ruling for wool, grain, silver, and other products, a determined effort is now being made to open up new sources of wealth, which it is hoped will tend largely to bring about a return to more prosperous times.

The present economy in every branch of the public service, as well as generally among individuals, has become a necessity, and this of itself must tend to reduce the volume of internal trade. Big imports and an ever expanding number of traders are among the things of the past. If matters are to be placed on a sound basis both will have to be contracted within the limits which existed prior to the period of the "midsummer madness." The process of reduction may be—indeed, must be—accompanied with hardships to the individual, but it will have to be submitted to.

Taking the events of last year in their course, it may be said that very early symptoms of distrust were noticeable. Common talk and rumors were busy early in January with the position of the financial institutions, and doubtless to some extent later events may be traced to this continuous scandal and gossip. Nor was this system of decrying the soundness of the position confined to Victoria and New South Wales. Critics, with the intention of bringing about the very trouble which they had prophesied would occur, supplied the press with cables and letters containing suggestions of coming woes sufficient to terrify the most sanguine of the depositors in the many banks.

Everyone knows what a tender plant credit is, and how quickly it can be blasted by unscrupulous rumors and half-suggested scandal. At the close of January it was known that the negotiations which for a week had been pending between the associated banks and the Federal Bank had proved fruitless, and the latter closed its doors. How far this repudiation of at least an implied promise to the public, that all banks in the association should receive mutual support tended to weaken confidence both here and abroad in the other institutions need scarcely be discussed, as nothing has been advanced to show that the case had been colored or overstated.

With the suspension of the Federal Bank an immediate drop in all securities representing real estate followed, with the natural result that all institutions known to be more or less interested were regarded with suspicion. Matters instead of settling, as some asserted they would when the single weak institution was got rid of, steadily went from bad to worse, and by the end of March it was evident that further disaster must follow.

On the 6th of April the Commercial Bank of Australia closed its doors and the excitement was intensified, a rush for deposits being made on all the banks; on the 13th of April (a week later) the English, Scottish, and Australian Chartered Bank suspended, to be quickly followed on the 16th by the London Chartered Bank of Australia.

Efforts were made at this juncture to stay the panic, the assistance of the Government being invoked, but with little effect. The community were absolutely frightened and continued to withdraw their money as fast as possible, large sums in gold being deposited in the safes of the company formed to undertake the care of valuables.

On the 1st of May the National Bank of Australia suspended, and the Government proclaimed a holiday for a few days in hopes of allaying the alarm. The respite was accepted by the Australian banks, but the Union and Australasia kept their doors open and had to stand the full weight of the storm. The action taken by the Government, however, did not result in any good. On the 6th of May the Colonial Bank stopped; on the 10th the Bank of Victoria had also to close its doors; and the City of Melbourne Bank, which had made a good fight, succumbed on the 17th.

While affairs in Victoria were bad, in New South Wales and Queensland a similar condition of things existed. The Australian Joint Stock Bank had to close its doors on the 21st of April, and on the 16th of May the Commercial Banking Company of Sydney had to follow the same course.

The action taken by the Government in the colony of New South Wales was to decree bank notes a legal tender, and it is stated that this action prevented further disasters.

In Queensland the institutions which suspended payment during the panic were the National Bank of Queensland, the Bank of North Queensland, and the Royal Bank of Queensland. Schemes of reconstruction were in every instance submitted to shareholders and creditors, and these were almost unanimously accepted.

The following list shows the date of suspension of each bank and that of its reopening on its reconstruction basis.

Bank.	Date of suspension.	Date of reopening.
Victoria.		
Commercial of Australia	April 5, 1893	May 6, 1893
English, Scottish, and Australian Chartered	April 15, 1893	Aug. 31, 1893
London Chartered	April 16, 1893	Aug. 3, 1893
National of Australia	May 1, 1893	June 26, 1893
Colonial of Australia	May 6, 1893	July 10, 1893
Victoria	May 10, 1893	June 19, 1893
City of Melbourne	May 17, 1893	July 19, 1893
New South Wales.		
Australian Joint Stock	April 21, 1893	June 19, 1893
Commercial Banking Company of Sydney	May 16, 1893	June 16, 1893
Queensland.		
Queensland National	May 28, 1893	Aug. 2, 1893
Bank of North Queensland	May 15, 1893	July 19, 1893
Royal Bank of Queensland	May 17, 1893	Aug. 7, 1893

The manner of reconstruction may be briefly described as a grant of an extension of time by the creditors, depositors receiving long-dated deposit receipts or preference shares for their claims, although in many instances new capital was called up.

The following is a list of the new demands which the shareholders were called on to pay:

Bank.	Number of shares.	To be called up, per share.	Time allowed.	Total to be paid up.
			Years.	
Commercial of Australia	300,000	$29.19	6	$8,759,700
Colonial of Australia	125,000	9.73	4	1,216,625
National of Australia	260,000	14.59	4	3,795,870
Bank of Victoria	240,000	12.16	5	2,919,900
City of Melbourne Bank	200,000	6.07	2½	1,216,625
Commercial Bank of Sydney	48,000	60.82	2½	1,946,600
Queensland National Bank	160,000	14.59	2	2,345,920
Royal Bank of Queensland	75,000	12.16	5	912,468
English, Scottish, and Australian Chartered Bank	45,000	60.82	1½	2,737,406
London Chartered Bank	50,000	48.66	1½	2,433,250
Australian Joint Stock Company	156,602	14.59	2	2,286,310

The total is $30,570,674, these amounts to be paid on the colonial and London registers, respectively.

The amounts on the London register, taken from Burdett's Official Intelligence for 1893, are as follows:

Bank.	Head office.	New capital payable on colonial registers.	New capital payable on London registers.
Commercial Bank of Australia	Melbourne	$7,953,807	$805,891
Colonial Bank of Australia	do	1,216,625	
Bank of Victoria	do	2,270,805	
City of Melbourne Bank	do	1,265,290	648,713
National Bank of Australia	do	3,258,650	391,221
Commercial Bank of Sydney	Sydney	1,946,600	
Australian Joint Stock Company	do	2,189,925	96,385
Queensland National Bank	Brisbane	1,760,075	624,409
Royal Bank of Queensland	do	912,468	
English, Scottish, and Australian Chartered Bank	London		2,737,406
London Chartered Bank	do		2,433,250
Total		22,776,245	7,737,275

Of the amount contributable on the colonial registers, $15,916,515 is to be paid to Melbourne banks and $2,623,879 to Queensland banks. A certain proportion will, however, have to come from British proprietors who are on colonial registers.

So far the calls have been paid with commendable promptness.

Following the disasters in the banking world, something like a crisis on a smaller scale occurred in wool circles. The old established firm of Messrs. Goldsborough, Mort & Co., has had to reconstruct, while the New Zealand Loan and Mercantile Agency Company is now undergoing the same process. Failures of different companies, as well as individuals, have been numerous. Since July, however, matters have been going on more quietly, but the same painful process of liquidation is to be complete, and until this is over it would be hazardous to assume that the danger is wholly past.

The most encouraging feature of the situation is to be found in the steady development of local resources. Gold-mining has made good strides, with highly satisfactory results. The harvest which is now completed promises the largest yield in the history of Victoria, while in other directions there are evidences that, with industry and economy, not only may the mistakes of the past be repaired, but the foundation laid for a prosperous future.

DANIEL W. MARATTA,
Consul-General.

MELBOURNE, *February 1, 1894.*

TRADE OF BATOUM—1893.*

The following table shows the arrivals and departures of vessels at the port of Batoum during the years 1892 and 1893:

ARRIVALS.

Nationality.	Sailing vessels.				Steamers.			
	1892.		1893.		1892.		1893.	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
Austrian	4	2,290	5	2,286	44	44,227	60	52,730
British	.....	.....	.....	.....	277	374,599	263	400,836
Danish	.....	.....	.....	.....	14	14,257	13	13,460
French	.....	.....	.....	.....	54	70,694	70	93,182
German	.....	.....	.....	.....	20	23,558	20	22,570
Greek	136	52,877	78	33,329	4	4,517	20	27,212
Norwegian	.....	.....	.....	.....	26	33,809	14	20,758
Russian	69	10,977	52	6,201	426	398,637	427	429,566
Turkish	40	10,548	39	7,463	1	675	.....	.....
All others	21	9,715	11	8,118	18	25,550	23	30,237
Total	270	86,407	185	57,397	884	990,523	910	1,090,551

DEPARTURES.

Austrian	1	805	5	2,286	44	44,227	60	52,730
British	.....	.....	.....	.....	267	364,277	266	405,938
Danish	.....	.....	.....	.....	14	14,257	13	13,460
French	.....	.....	.....	.....	54	70,694	70	93,182
German	.....	.....	.....	.....	20	23,558	20	22,570
Greek	116	44,356	94	40,247	4	4,517	19	25,945
Norwegian	.....	.....	.....	.....	24	31,482	15	21,071
Russian	65	10,213	53	6,498	425	398,077	427	429,566
Turkish	36	9,175	42	8,242	1	675	.....	.....
All others	21	9,934	11	8,118	16	23,536	6	3,263
Total	239	74,483	205	65,391	869	975,300	896	1,067,725

*For former reports on Russian petroleum by Consul Chambers see No. 140, p. 16, and No. 151, p. 577.

The following table shows the exports from this consular district to the United States, declared at this consulate, in 1892 and 1893:

Merchandise.	1892.		1893.	
	Quantity.	Value.	Quantity.	Value.
	Tons.		*Tons.*	
Licorice root	16,639	$624,362.73	16,720	$627,599.83
Wool:				
Caucasian	1,342	295,001.59	338	75,573.81
Khorrasan	141	39,555.75	582	167,927.23
Turkestan	1	233.24	10	1,633.58
Manganese:				
Batoum	389	3,963.31	1,178	15,372.49
Poti	26,091	306,362.71	30,422	385,788.88
Carpets, etc				1,512.84
Total	44,543	1,269,479.33	49,250	1,275,408.66

The bulk of this export was by direct steamers and sailing vessels to United States ports. The clearances for United States ports were: From Poti, twelve steamers with manganese cargoes, and from Batoum, four steamers and twelve sailing vessels with licorice root and wool.

WOOL SHIPMENTS TO THE UNITED STATES.

The shipments of wool to the United States were principally via Marseilles, Antwerp, Hamburg, and London, with transshipment at those ports. The cholera, which, however, was not epidemic in this district during the year, interfered to some extent with the export of wool to the United States, because of the quarantine regulations there, which could not be properly complied with because of there being no facilities for pressing and baling wool at Batoum; but the wool export to the United States was entirely stopped in the last four months of the year, because of the pending tariff legislation. Wool exporters, feeling sure that wool would be placed upon the free list by the new tariff, commenced early in the autumn to ship to Marseilles, Antwerp, Hamburg, and other continental ports, to be held there until the passage of the new tariff bill. Consequently, while the value of the export of wool to the United States declared at this consulate during the last four months of 1892 was over $158,000, not a dollar's worth was declared in the same time in 1893.

LICORICE ROOT.

The export of licorice root was only a few tons more in 1893 than in 1892, and there is little prospect of an increase in this export in 1894, as more than a month ago I was informed that, owing to the fact that the market in the United States was overstocked, exporters in the Caucasus had not yet commenced buying the green root.

MANGANESE ORE.

The export of manganese to the United States increased slightly in 1893, and if a very material decline in price proves any inducement to American buyers, the export of this article to the United States should greatly increase this year.

In a report from this consulate last year it was surmised that the expected completion late in the year of a railway from the mines to the main line of the Transcaucasian Railway, a distance of about 50 miles, would cheapen the ore considerably, as the transportation this distance at that time was by means of pack horses, and was consequently very expensive, costing about $7.25 per ton. The rail rate was expected to be much less. The railway was finished late in the year, and before it was working properly the price of manganese fell from about $12 per ton free on board vessels at Poti to about $8.25 per ton, and it is said that it can now be bought even lower.

PETROLEUM.

From the statistics given herewith it will be seen that the Russian petroleum business was greatly increased in all its branches during the year 1893.

The Russian crude-oil production reached the enormous daily average of 136,000 barrels from an average of 316 wells, against less than 112,000 barrels per day from 298 wells in 1892. The average per well in 1893 was 430 barrels, against 374 barrels in 1892, which would seem remarkable (as the territory was, of course, older in 1893 than in 1892) without the explanation that the cholera interfered greatly with the pumping of wells in 1892. Fifty-seven new wells started drilling in the eleven months ending with November, 1893, against 59 in the year 1892, but the average number of feet drilled per month in 1893 was only 6,490, against 6,807 in 1892, the falling off being undoubtedly due to the extreme depression and low price of refined oil; but as the increased production of 1893 was obtained at a less cost for drilling, the average cost of crude oil produced in 1893 was less than in 1892.

The output of all products from Baku in the eleven months of 1893 (December figures are not yet obtainable) was 1,304,000,000 gallons, against 1,063,500,000 gallons in 1892, an increase of 240,500,000 gallons, of which about 128,000,000 gallons was residuum, the use of which for fuel on the Caspian Sea and in the Volga country is enormous and apparently steadily increasing. The output of illuminating oil was 11,000,000 gallons less in the eleven months of 1893 than for the year 1892, but the shipments in December were more than 20,000,000 gallons; consequently there was an increase in the output of this product also.

In the export of petroleum products from Batoum there was also a material increase over 1892, but the greater part of the increase in the export of illuminating oil was carried by the tank steamers now running to points through and beyond the Suez Canal. There are now seven large tank steamers in that trade, but it is said that they have been losing money, owing to the trouble they find in distributing the oil from the points at which they

have erected tankage, and the extraordinarily low prices for case oil with which they are compelled to compete. It is said here, and generally believed, that the owners of these tank steamers are now erecting can and case factories in India, China, and Japan, having found that these packages are absolutely necessary for the distribution of their refined oil. If this is true, it is difficult to see any advantage in the shipment of oil in bulk to the far East.

PRESENT STATE OF THE PETROLEUM TRADE.

In the beginning of 1893, notwithstanding the immense crude production, crude oil was worth about 11 cents per barrel at wells and refined about nine-tenths of a cent per gallon free on board cars at Baku. As the production increased, prices for both crude and refined declined, crude to as low as 3 to 4 cents per barrel (upon the striking of several very large wells) and refined to as low as half a cent per gallon in May. These prices were said to be ruinous for both producer and refiner, and a further decline seemed impossible. This state of affairs was entirely due to overproduction. Instead of curtailing production and the output of refined oil, they commenced to send petitions to the Government at St. Petersburg for assistance in the shape of a reduction in the rate of freight on petroleum products between Baku and Batoum. For a time these petitions received little attention from the Government, as it was very apparent that any reduction in the freight rate would only benefit the foreign consumer; but later, in October, the Ministry of Finance called a meeting of the trade in St. Petersburg, at which they were urged to form a union for the purpose of conducting the export trade as a unit, and thus put a stop to the ruinous competition that has existed in the trade. As an inducement to do this, the Ministry offered a reduction in the freight rate. The result was that, before the meeting adjourned, a number of those present, representing about 62 per cent of the total export of 1892, signed an agreement approved by the Ministry of Finance, to conduct their export business as a unit for five years from April 1, 1894, and appointed two of the largest firms in the trade as the sole selling agents of the union. But, upon the return of these people to Baku, they were informed by wire from St. Petersburg that the freight reduction would only be granted when the combination included 85 per cent of the whole trade, and that it would only be accorded to the combination, which was called the "Union." Then the ill feeling and jealousies which have always been a stumbling-block in the way of combining the trade commenced to become very conspicuous, and a cry from those who had not signed the St. Petersburg agreement went up to the Ministry that the two firms approved as the sole selling agents of the union were only nominally Russian, while one large and purely Russian firm, owning a number of steamers and having Russian agents abroad, was left entirely out in the cold. To this complaint the reply was made that the outsiders, headed by the Russian firm, might form a separate combination, and submit their rules and agreement to the Ministry, and if approved by the Ministry, they would be granted all

the benefits and privileges which would be given to the union. About 20 to 25 per cent of the trade (of those who had not joined the union, headed by the aforesaid Russian firm) accepted this proposition, and their agreement was approved by the Ministry, and they were called the second group of the union, the original combination being called the first group, the two making the necessary 85 per cent of the trade. When this was accomplished, and the matter seemed settled, a telegram was received from St. Petersburg saying that the Ministry could not grant the union any special privileges in the way of freight reduction, and that consequently any such reduction could be taken advantage of by all in the trade. For a time the whole scheme of combination seemed doomed; and then a telegram came from St. Petersburg proposing what was called a "fighting" freight rate to the export trade. This rate was to be based upon the price of refined oil in the foreign markets, and would, apparently, make the railway bear the expense of competing with American oil abroad. For example, if the price of refined in foreign markets yielded, say, 15 copecks* per pood (5.58 cents per 36 pounds) on board vessels at Batoum, the railway was to take as freight the difference between 15 copecks per pood and the cost of the oil at Baku, which cost was to be fixed by the Ministry, who proposed that 6 copecks (2.23 cents) per pood should be taken; the refiners, however, claimed that the actual cost of refined could not be taken at less than 8 copecks (2.976 cents) per pood, as that figure was really less than cost. However, this matter, it was thought, would be settled satisfactorily, and there was a great deal of enthusiasm displayed over the "fighting" tariff (so called because it was expected to force the American trade into advancing prices by arrangement with the union), and a telegram was received at Baku from St. Petersburg saying that the Ministry had agreed to this tariff in principle, and instructing both groups of the union to send representatives to St. Petersburg authorized to settle terms for the combination of the two groups, arrange about a cost price, and all other working details. Representatives were sent to St. Petersburg, as requested, and they commenced their meetings there on February 1, and had not yet finished their affairs when last heard from, but about the 15th they wired Baku that everything indicated an early, amicable, and satisfactory union of the two groups, but that the Ministry had refused to adopt the "fighting" tariff and would only agree to a reduction of 5 copecks (1.86 cents) per pood on the Baku-Batoum freight rate, which reduction would be given to the union only; and that is the status of the affair at present writing.

The reduction of 5 copecks per pood in the rate of freight from Baku to Batoum will reduce that rate from 84 to 62 cents per barrel (42 gallons) and make refined oil, now about 2.55 cents per gallon free on board vessels at Batoum, worth only about 2 cents per gallon, providing there is no advance in the price at Baku, which is very sure to be the case. The great benefit

*According to the United States Treasury, the silver ruble was worth, on April 1, 1894, 37.2 cents (American). The Treasury adds that, "although silver is the nominal, paper is the actual, currency. The depreciation of the paper currency is measured by the gold standard."

the Russian trade hopes to derive from this governmental assistance is an increase in export and the coercion of the American trade into a division of the world's markets, with advanced prices.

NEW TERRITORY.

Near a place called Grosnoe, situated north of the Caucasian range, in the valley of the Terek River, about halfway between the town of Vladikavkas and the Caspian Sea port of Petrovsk, heavy oil has been produced in small quantities from shallow pits for many years; but as the place was far from railway and sea, the quantity of the production was limited to meet only the small local consumption. Several years ago, however, the construction of a railway from Vladikavkas to Petrovsk was commenced, and as Grosnoe was on this line, the territory began to attract the attention of the Baku trade. Many went from that place and elsewhere, and rented land from the Cossack owners. No drilling was commenced, however, until last year, when it was apparent that the completion of the railway was near at hand. On the 18th of October last, a well was struck at the depth of 442 feet, which commenced flowing at the rate of 6,000 barrels per day, but as it produced more water and sand than oil, it soon stopped. On the 30th of November the second well was struck at the depth of 196 feet, and commenced flowing at the rate of 100,000 barrels per day—pure oil of a specific gravity of 0.874 (30° Beaumé). It soon subsided to about 50,000 barrels per day, however, and had fallen off gradually to about 6,000 barrels, when I last heard from it, which was several weeks ago. This well is said to have produced more than 1,000,000 barrels since it began flowing. Shortly after the second well commenced flowing, the first well struck was cleaned out and began flowing at the rate of 1,200 barrels per day of pure oil, and it was holding up to this amount in the beginning of February.

These wells demonstrate, apparently, the existence of very rich territory, the extent of which is, however, problematical, and can only be determined by the drill. They are about six miles from the town of Grosnoe, which is now a railway station, but there is no refining capacity, and until a pipe line to Grosnoe and refining capacity are constructed, this territory can not affect the markets. It is reported that the railway company has already ordered pipe for a pipe line, and that the construction of refineries at Grosnoe has been commenced.

Grosnoe is about the same distance from the Black Sea port of Novorossisk as Baku is from Batoum, but as the railway runs through a very level country, the expense of transportation to the Black Sea will be much less than from Baku, and the rate of freight is expected to be much lower. Novorossisk is also almost a day's steaming for an ordinary cargo steamer nearer to the Bosphorus than Batoum; consequently, when transportation and refining facilities are provided for the Grosnoe territory, it may be expected to be an important factor in the oil markets of the world.

I append the latest and most complete statistics of the oil business obtainable.

Number of wells started, drilled deeper, drilling and producing, and number of feet drilled in 1892 and 1893.

Months.	Number of wells started drilling.		Number of wells drilled deeper.		Number of wells drilling.		Number of feet drilled.		Number of wells producing.	
	1892.	1893.	1892.	1893.	1892.	1893.	1892.	1893.	1892.	1893.
January	13	8	35	37	141	62	11,928	5,394	312	326
February	7	11	43	37	131	57	11,697	6,755	312	327
March	2	5	51	41	127	69	9,842	6,874	317	333
April	6	4	50	44	117	64	8,190	7,189	306	324
May	6	8	39	41	94	69	9,100	8,862	302	326
June	1	3	32	42	84	73	4,508	7,959	269	310
July	.....	1	13	37	44	69	2,100	6,657	223	307
August	1	5	18	39	45	65	3,416	5,635	267	293
September	8	4	19	31	52	59	4,256	6,044	291	300
October	3	2	23	38	45	60	5,754	4,690	325	312
November	3	6	28	30	50	58	4,879	5,327	323	317
December	9	.....	30	22	58	59	6,020	.....	324	.....
Total	59	57	.....	.....	.....	.....	*6,807	*6,490	*298	*316

*Monthly average.

Exports and domestic shipments of Russian petroleum products in 1892 and 1893.

Description.	Exports.		Domestic shipments.	
	1892.	1893.	1892.	1893.
Crude:	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*
Batoum	85,000	440,000	60,000	310,000
Baku	1,100,000	2,355,000	49,845,000	50,680,000
Total	1,185,000	2,795,000	49,905,000	50,990,000
Illuminating and distillate:				
Batoum	209,470,000	238,770,000	28,000,000	33,280,000
Baku	1,600,000	1,155,000	126,830,000	146,895,000
Baltic ports	8,110,000	4,380,000	.....	.....
Western frontier	5,310,000	2,095,000	.....	.....
Total	224,490,000	246,400,000	154,830,000	180,175,000
Lubricating and distillate:				
Batoum	24,415,000	25,670,000	1,685,000	2,515,000
Baku	.....	.....	3,995,000	3,140,000
Baltic ports	5,800,000	6,735,000	.....	.....
Western frontier	290,000	570,000	.....	.....
Total	30,505,000	32,975,000	5,680,000	5,655,000
Residuum:				
Batoum	12,335,000	16,025,000	480,000	465,000
Baku	505,000	410,000	516,515,000	642,790,000
Baltic ports	240,000	115,000	.....	.....
Western frontier	75,000	85,000	.....	.....
Total	13,155,000	16,635,000	516,995,000	643,255,000
Summary:				
Batoum	246,305,000	280,905,000	30,225,000	36,570,000
Baku	3,205,000	3,920,000	697,185,000	843,175,000
Baltic ports	14,150,000	11,230,000	.....	.....
Western frontier	5,675,000	2,750,000	.....	.....
Total	269,335,000	298,805,000	727,410,000	879,745,000

Shipments of petroleum products from Batoum in 1892 and 1893.

To—	Crude and residuum.		Lubricating oils.		Illuminating and distillate.	
	1893.	1892.	1893.	1892.	1893.	1892.
Austria:	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*
Fiume	32,720	.....	478,405	453,240	21,707,690	20,913,475
Trieste	374,500	348,525	999,460	265,080	11,210,175	7,742,240
Belgium	2,144,070	1,678,630	5,387,600	6,211,075	264,200	156,150
Bulgaria	3,600	.....	52,800	6,400	.....	.....
Egypt	50	8,750	71,850	51,100	.....	.....
United Kingdom	1,695,755	1,054,190	6,135,320	1,765,695	4,089,965	5,196,075
France	1,674,585	3,148,890	7,228,540	7,687,675	6,545,305	.....
Germany	767,540	92,000	5,626,075	8,759,175	362,320	.....
Holland	.....	.....	29,400	182,010	.....	.....
Italy	712,350	58,750	817,990	333,100	.....	.....
Malta	.....	.....	.....	1,000	.....	.....
Roumania	.....	100,245	339,150	171,895	.....	848,220
Spain	.....	364,170	395,615	6,750	.....	.....
Turkey	3,400	1,300	188,550	79,750	.....	.....
Other countries	.....	.....	10,150	38,000	.....	.....
Total	7,408,570	6,855,450	27,760,905	26,011,945	44,179,655	34,856,160
Russia	597,320	78,600	775,050	816,800	2,131,615	2,210,495
Grand total	8,005,890	6,934,050	28,535,955	26,828,745	46,311,270	37,066,655

To—	Refined oil.		Total.	
	1893.	1892.	1893.	1892.
Austria:	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*
Fiume	293,905	.....	22,512,720	21,366,715
Trieste	3,341,935	3,509,380	15,926,070	12,865,225
Belgium	10,123,190	11,448,665	17,919,060	19,494,520
Bulgaria	3,051,000	1,633,930	3,107,400	1,640,330
Cochin China	800,000	1,590,860	800,000	1,590,860
China	11,729,075	10,505,710	11,729,075	10,505,710
Egypt	6,349,120	7,119,360	6,421,020	7,179,210
United Kingdom	35,228,795	40,517,605	47,149,835	48,533,515
France	1,857,895	1,639,380	17,306,325	12,475,945
Germany	340,420	738,240	7,096,355	9,589,415
Holland	1,739,135	2,415,915	1,768,535	2,597,925
India	51,116,600	47,807,290	51,116,600	47,807,290
Italy	5,648,900	9,290,870	7,179,240	9,682,720
Japan	11,295,585	10,356,140	11,295,585	10,356,140
Java	24,457,280	17,646,800	24,457,280	17,646,800
Manila	2,642,970	756,570	2,642,970	756,570
Malta	947,175	1,066,285	947,175	1,067,285
Roumania	1,270,745	1,050,180	1,609,895	2,170,540
Siam	646,400	.....	646,400	.....
Spain	.....	20,000	395,615	390,920
Turkey	20,463,280	24,688,270	20,655,230	24,769,320
Suez Canal (bulk)	17,704,365	.....	17,704,365	.....
Other countries	195,300	290,000	205,450	328,000
Total	211,243,070	194,091,450	290,592,200	261,815,005
Russia	29,413,635	23,790,980	32,917,620	26,896,875
Grand total	240,656,705	217,882,430	323,509,820	288,711,880

Monthly production of crude oil of Balakhani-Sabunchi and Bibi-Eibat for the year 1893.

Months.	Crude piped to refineries.	Lake oil and crude shipped.	Estimated fuel and evaporation.	Stocks at wells at end of month.	Total.	Stocks at wells at beginning of month.	Total production for month.
	Barrels.	*Barrels.*	*Barrels.*	*Barrels.*	*Barrels.*	*Barrels.*	*Barrels.*
January	3,392,022	634	221,880	1,907,412	5,521,948	1,953,452	3,568,496
February	3,686,442	4,416	240,000	2,157,087	6,087,945	1,907,412	4,180,533
March	3,741,376	4,183	243,480	2,669,731	6,658,770	2,157,087	4,501,683
April	3,874,916	6,117	253,920	2,560,659	6,695,612	2,669,731	4,025,881
May	4,026,239	3,240	264,000	2,636,235	6,929,714	2,560,659	4,369,055
June	3,708,554	5,517	246,360	2,587,806	6,548,237	2,636,235	3,912,002
Total for 6 months	23,589,549	24,107	1,469,640	14,518,930	38,442,226	13,884,570	24,557,650
July	4,407,830	6,440	293,040	2,203,217	6,910,527	2,587,806	4,322,721
August	4,179,066	4,743	272,280	1,941,157	6,397,246	2,203,217	4,194,029
September	3,648,510	5,995	238,920	1,954,111	5,847,536	1,941,157	3,906,379
October	4,414,991	5,136	287,640	1,869,484	6,577,251	1,954,111	4,623,140
November	3,779,331	4,801	247,880	2,278,481	6,308,493	1,869,484	4,439,009
December	3,284,856	4,536	215,880	2,361,245	5,866,517	2,278,481	3,588,036
Total for year	46,144,133	55,758	3,023,280	27,126,625	76,349,796	26,718,832	49,630,964

Months.	1893.			1892.		
	Average daily production.	Daily average from flowing wells.	Daily average from pumping wells.	Average daily production.	Daily average from flowing wells.	Daily average from pumping wells.
	Barrels.	*Barrels.*	*Barrels.*	*Barrels.*	*Barrels.*	*Barrels.*
January	115,113	23,446	91,667	96,443	16,219	80,224
February	149,305	35,790	113,515	99,432	16,067	83,365
March	145,215	43,622	101,593	129,541	36,693	92,848
April	134,196	19,188	115,008	129,343	43,172	86,171
May	140,937	27,907	113,030	137,075	46,130	90,945
June	130,400	35,164	95,236	94,033	19,112	74,921
Daily average for 6 months	135,677	30,756	104,921	114,503	29,696	84,807
July	139,442	17,273	122,169	76,772	15,224	61,548
August	135,291	18,306	116,985	91,882	22,107	69,775
September	130,212	15,104	115,108	106,115	27,624	78,491
October	149,134	25,196	123,938	124,007	32,756	91,251
November	147,966	31,076	116,890	130,946	37,160	93,786
December	115,743	21,697	94,046	123,750	23,980	99,770
Daily average for year	135,975	26,052	109,923	111,640	28,044	83,596

NOTE—Barrels are of 42 gallons.

JAMES C. CHAMBERS,
Consul.

BATOUM, *February 28, 1894.*

ARGENTINE VANADIUM.

A short time ago I received a letter from H. G. Kittredge, esq., editor of the Boston Journal of Commerce, inclosing newspaper clippings in reference to the discovery in the provinces of Cordoba and Mendoza, Argentine Republic, of the raw substance called "vanadium," a valuable coloring matter used by textile manufacturers, and asking me to report what further information I might be able to obtain on the subject. After various personal inquiries, which were fruitless, I advertised for information in the columns of the Buenos Ayres Standard, and Mr. H. D. Hoskold, chief of the mining bureau of the Argentine Republic, who has just returned from the Chicago Columbian Exposition, has sent to that paper a communication in reference to the substance, samples of which, it appears, were on exhibition in the Argentine exhibit. His article seems to be of sufficient importance to be published.

[From the Buenos Ayres Standard, January 30, 1894.]

VANADIUM.

Vanadium is considered to be a rare substance in nature, and I think it was first discovered in Swedish iron about the year 1830. Also, I have understood that some of the professors of the University of Cordoba discovered vanadate of lead in some of the mines of that province.

Hunt says that "vanadium is white, and when its surface is polished it resembles silver or molybdenum more than any other metal." Prof. Boscoe has studied the compounds of vanadium to a very great extent.

Dr. Juan J. J. Kyle, of the national mint, devoted considerable attention to the analysis of the coal not long since discovered at San Rafael, in the province of Mendoza, and, consequent upon there being something extraordinary about the ash, he was induced to undertake some elaborate experiments, and, curiously enough, discovered that portions of the ash contained as much as 38 per cent of vanadic acid. He also published his discovery in this country and in Scotland.

A sample of the brown-colored ash, and also a sample of a preparation—vanadate of ammonia—made by him, was also exhibited in the Argentine section (mining and metallurgy) at the World's Columbian Exhibition, Chicago, in 1893, and an award was accorded to Dr. Kyle for his discovery.

I had occasion to indicate to a full commission of judges of award that Dr. Kyle was the first person on record who had made the curious and important discovery in the ash of Argentine coal, quite new to science, and that consequently every jurymen present would feel a great interest in it. The president of the board of judges acknowledged and indorsed my observations.

I have no doubt Dr. Kyle can give some interesting particulars if asked to do so.

Vanadium has various uses, and in one case vanadate of ammonia has been recommended to be treated with sulphate of copper and other processes to form vanadium bronze. Vanadate of ammonia, treated with nutgalls, forms a black liquid which may be used as an excellent black ink.

Without having precise data before me, I believe that vanadic acid is worth about 17*s.* 9*d.* per pound, and is said to be the firmest black dye for silk.

The percentage of the ash in the San Rafael coal is small, and as there seems to be a variation in the percentage yield of the vanadic acid, it would be interesting as well as important to discover whether the acid and the ash of the coal would diminish or increase in proportion to the depth attained in the exploitation of the coal mines. If these elements were

to increase, and if it were elected to employ the calorific power of the coal on the spot for some kind of manufacturing use, means may be employed to save the ash and so add considerably to the profits to be derived from the exploitation of the mines.

In addition to the above paper from Prof. Hoskold, I am also in receipt of the following letter from Prof. Kyle, assayist of the Argentine mint:

I have much pleasure in inclosing a copy of my paper on the vanadiferous coal found at San Rafael, Mendoza. The analysis to which the paper refers was made on a sample from one of the three mines owned by Dr. Salas and his partners. Samples of the coal from the other two, at some kilometers distance and at a lower level, contain more ash, but are not proportionately richer in vanadium. Indeed, the vanadium seems to be associated in some way with the combustible elements and not with the earthy part.

The whole deposit is a mystery, and is of great scientific interest. Whether it may turn out of industrial importance, is another question. The mines are situated at from 2,500 to 3,200 meters above the sea level, and carriage from such an elevation is no easy matter. But the stuff burns admirably and would make splendid patent fuel (*briquettas*). I believe it could be utilized as a source of paraffin oil, and the ash as a source of vanadium compound. But the present owners want capital and experience in utilizing the stuff.

I much regret that your countryman, Mr. Barranger, was unable to visit the mines and give his opinion regarding the extent and probable durability, if formally worked by competent men.

The following is the paper which Prof. Kyle has published in reference to this interesting lignite:

VANADIFEROUS LIGNITE FOUND IN THE ARGENTINE REPUBLIC, WITH ANALYSIS OF THE ASH.

By order of the Minister of the Interior of the Argentine Republic, the director of the national board of works forwarded to the author a small sample of coal taken from a seam recently discovered near the town of San Rafael, in the province of Mendoza, with instructions to analyze the mineral and to report on its value as a combustible.

The coal is lustrous black, even when finely pulverized, without fibrous structure, and remarkably brittle. On being heated it softens, emits much gas, which burns with a smoky flame, yielding a light, spongy coke, which, after combustion leaves a singularly small amount of a greenish-colored ash. The condensed products of its distillation have an acid reaction. The specific gravity of the mineral = 1.173. Its proximate analysis gave:

Loss on drying at 100°	2.05
Volatile matters	49.51
Fixed carbon	47.81
Ash	0.63
Total	100

In the elementary analysis, the carbon and hydrogen were determined by combustion with lead chromate, the nitrogen by combustion with soda lime, and the sulphur by Eshka's method. Its composition, deducting hygroscopic water and use, was found to be as follows:

Carbon	60.59
Hydrogen	8.63
Nitrogen	1.43
Sulphur	4.23
Oxygen	25.12
Total	100

In the calorimetric assay by Berthier's method one gram was found to reduce 23.102 grams of lead = 5405 heat units. Judging from the above analyses, the mineral would appear to resemble most of the bituminous lignites of Tertiary coals which occur in this Republic and in Chile. These, however, generally contain a high percentage of ash, the sulphur being chiefly present as iron pyrites. It is evident that such is not the case in the San Rafael mineral, as the percentage of ash is very low, and, as will be seen from the analysis later on, this only contains a small proportion of iron oxide. The sulphur determination was carefully repeated with every possible precaution to avoid error, such as might occur from impurity in the reagents, the crucible being heated by an alcohol flame. It would therefore appear that the sulphur must for the most part be present either in the free state or in some form of combination with the organic elements.

The remarkably small percentage of ash and its peculiar greenish color naturally attracted my attention. On treating it with hydrochloric acid there appeared a deep-red coloration, which, on dilution and heating, changed to a greenish blue. On addition of ammonia in excess the color disappeared, showing it had not been due to traces of copper, as I had at the first supposed. On further investigation I satisfied myself that the ash contained vanadium, and was induced to continue its study as thoroughly as might be possible, considering the small quantity (about 500 grams) of raw material at my disposal. The mineral was incinerated in a platinum dish over a Bunsen flame, and the ash, still retaining some carbon, was reserved for analysis. The qualitative analysis showed it to contain:

Soluble in water, Ca, K, Na, V_2O_5, SO_3, and Cl (trace); soluble in HCl, Fe, Al, Ca, Mg, V_2O_5, Ph_2O_5, SO_3, and Mn (trace); insoluble in HCl, SiO_2, Al, Fe, Mg, Ca (trace), and carbon.

In the course of the qualitative examination I had abundant proof that the ash contains a large proportion of vanadium, so that the quantitative methods required to be carefully chosen, to avoid waste of the very limited supply of material, and at the same time secure completeness and accuracy in the results.

The following plan was adopted, in the description of which I shall omit unnecessary details. I have been much indebted to a paper by Dr. Adolfo Doering on the "Separation and Quantitative Estimation of Vanadic Acid," published in the Boletin de la Academie Nacional de Ciencies en Cordoba, Rep. Arg. (vol. v, p. 117), and have taken advantage of the author's suggestions with regard to the separation of vanadic acid from iron and alumina and its precipitation as mercurous vanadate.

One gram of the ash was repeatedly digested in hot dilute nitric acid; the insoluble silicates and carbon were washed on a tarred filter, dried at 120°, weighed, ignited to remove carbon, and the weighed silicates reserved for further investigation.

The nitric solution, after removal of excess of acid, was nearly neutralized by sodium carbonate, acetate of sodium added, and, on boiling, iron and aluminium phosphates and vanadates were thrown down. The precipitate was dissolved in nitric acid, some sodium phosphate was added, and the phosphates again precipitated by sodium acetate, the vanadium being retained in solution. The mixed phosphates were collected and weighed, the iron contained in these converted into sulphide and weighed as peroxide. The phosphoric acid was estimated, and its amount, plus that of the iron oxide, deducted from the weight of the total phosphates, the difference being regarded as alumina. As the determination of the Ph_2O_5 included part derived from the added sodium phosphate, that corresponding to the ash was separately determined. The filtrate containing vanadium and excess of sodium phosphate was precipitated by ammoniacal magnesium nitrate, and as the precipitate retained some V_2O_5, it was redissolved, and the treatment repeated until the magnesium and ammonium phosphate was colorless, the mixed filtrates containing the V_2O_5 were acidified with acetic acid, and the V_2O_5 precipitated by mercurous nitrate. The mercurous vanadate was washed with hot water, collected, and carefully ignited to expel mercury, the residue = 0.034 gram, V_2O_5.

The filtrate from the mixed precipitates of phosphates and vanadates, thrown down by sodium acetate as previously mentioned, was nearly neutralized by sodium carbonate, and the

V_2O_5 precipitated in the hot liquid by mercurous nitrate; the mercurous vanadate on ignition weighed 0.25 gram. On fusion with sodium carbonate and digestion of the melt with hot water, there remained a residue which weighed 0.008 gram, which being deducted= 0.242 gram V_2O_5, not combined with iron and alumina. After getting rid of excess of mercury by H_2S, the filtrate on being neutralized with ammonia assumed a dark color, and after repose there was formed a very slight precipitate which contained traces of vanadium and manganese sulphides, which were not estimated; the filtrate from these was treated by ammonium oxalate, and the lime estimated as usual; traces of magnesia were found in the filtrate, but not estimated.

It being now apparent that only a small fraction of the vanadium was in combination with iron or alumina, I treated a fresh portion of ash by digestion in warm ammonia solution, so long as anything appeared to dissolve. The alkaline solution was evaporated in a tarred capsule, the residue consisting of calcium sulphate, ammonium vanadate, and vanadates of the alkaline metals. By drying and weighing the residue insoluble in ammonia, which was collected on a tarred filter, the amount soluble in ammonia was ascertained. The filter was then ignited and the residue weighed, thus controlling the previous carbon determination. The residue was digested in hot nitric acid, and the solution employed to determine the phosphoric acid by means of molybdate of ammonium.

The mixed vanadates and calcium sulphate left on evaporation of the ammoniacal extract were treated with hot water, much of the calcium sulphate remaining undissolved; the V_2O_5 was precipitated by lead acetate, the precipitate collected on a tarred filter and washed with hot water, a few drops of ammonium acetate being added to insure removal of any lead sulphate; the lead vanadate was dried at 100° and treated as recommended by Roscoe (Roscoe and Schorlemmer, "Treatise on Chemistry" vol. 2, part 2, p. 299). As in this method the V_2O_5 is estimated by difference between the weight of the dried lead vanadate and the contained lead weighed as sulphate, the estimation was checked by titration with permanganate of the sulphuric solution, the V_2O_5 having been reduced to V_2O_4 by sulphurous acid. After removal of the excess of lead in the filtrate from the lead vanadate, and of the lime by ammonium oxalate, the filtrate was evaporated to dryness, ignited to expel ammonia salts, the residue moistened with sulphuric acid, again ignited, and the sulphates weighed. The residue dissolved completely in water, the contained SO_3 was on estimation found to correspond to the sulphates regarded as potassium sulphate; the sodium revealed by the spectroscope was therefore a mere trace. As the ash contained no carbonate the lime was calculated as sulphate.

The insoluble silicates were fused with alkaline carbonates, and the melt, being practically free from vanadium, was treated as usual for the estimation of silica and bases.

The composition of the ash after deduction of the carbon (which two separate determinations had shown to amount to 27.8 per cent in the ash as analyzed) may be stated as follows:

Soluble in acid:	
Vanadium pentoxide	38.22
Phosphorus pentoxide	0.71
Sulphuric anhydride	12.06
Calcium oxide	8.44
Ferric oxide	4.98
Aluminium oxide	3.32
Potassium oxide	1.73
Insoluble in acid:	
Silicic anhydride	13.7
Ferric oxide	9.42
Aluminium oxide	5.26
Magnesium oxide	0.83
Undetermined traces of manganese, magnesia, chlorine, and loss in analysis	1.33
Total	100

As the analysis of the extract obtained by digesting the ash in hot ammonia water showed that of the total V_2O_5, viz, 38.22 per cent, no less than 30.6, say 80 per cent, exists either as a vanadium oxide or as a soluble alkaline vanadate, only the remaining 20 per cent can exist in combination with iron and alumina. I have examined the ash under the microscope, and find it made up of particles having by reflected light the color of unburnished gold; others are translucent and of a greenish white color; a few are dark red, and have a metallic luster. When heated on platinum foil to the highest temperature of the blowpipe flame, the ash undergoes partial fusion and acquires a dark-red color and metallic luster.

On being boiled with distilled water, a yellow solution is obtained, the yellow color being probably due to the change of the potassium metavanadate into tetravanadate, by far the larger part of the vanadium compounds remaining insoluble in pure water, although, as previously mentioned, readily soluble in hot solution of ammonia.

There appears to be no doubt that the ash contains the vanadium, chiefly as vanadic pentoxide, in a free state, partly as potassium vanadate and also some as iron or aluminium vanadates.

From the foregoing it is evident that the San Rafael coal is one of great interest, being not only of fair quality as a combustible, but being also available as a source of vanadic acid for industrial purposes, seeing that each ton of the mineral, supposing it to be equal to the sample, will produce over 14 pounds of pure ash containing 4½ pounds of the vanadic pentoxide, of which 3½ pounds may be extracted by simple treatment of the ash with an alkaline liquor, while the remainder is, of course, susceptible of extraction from the insoluble part as in the case of the basic slags of Creusot (*Compt. Rend.*, xcv, 42–44), which contain but 1.5 per cent.

In short, the ash of the San Rafael lignite is, so far as my knowledge goes, the richest known material utilizable as a source of vanadium compounds. I have taken steps to obtain information regarding the carboniferous strata whence any sample of mineral was derived. The details can not fail to be of great interest; meanwhile I have been assured that the seam where explored is about one meter in thickness.

The Argentine provinces of Cordoba and San Luis are already well known as sources of vanadium minerals, such as vanadite, descloisite, and psittacinite. The province of Mendoza must now be added to the list of localities in the Argentine Republic where is to be found vanadium.

E. L. BAKER,
Consul.

BUENOS AYRES, *February 3, 1894.*

IMITATION OF AMERICAN MACHINES.

Some time since a manufacturing company of the United States wrote me relative to a Chemnitz man who had bought six of their pumps, alleging a purpose to sell them here and asking an exclusive agency, requesting at the same time that the company put his shield on the machines. He had seen the pumps at Chicago, liked them, and looked up the company on his way back. It is needless to say that the Chemnitzer is not an agent, but a manufacturer; that his intention was to take the machines apart, construct others like them, and get all the good out of such sales as he could before somebody else should forestall him in his purpose. Upon receipt of the letter I looked up the matter, found my suspicions confirmed, and after some trouble got and sent the company the information, plus one of the Chemnitzer's own

catalogues. The company wrote again asking whether the Chemnitzer was making the pumps or not, and I learned upon inquiry that he boasts about how he got his pumps, and that he intends to get more American machines in the same way and copy them.

Of the six bought of the company in question he sold four. These serve as excellent advertising pumps. The other two serve as models. He is making fourteen, or was a week ago.

I deem it my duty to tell all this to the Department, because so many Americans neglect to take out foreign letters patent * for their machines.

The Chemnitzer of whom I have spoken says he can make his pumps, *i. e.*, the American company's triplex pump, 20 to 25 per cent cheaper than he can get them from the company, and that Germans prefer to buy German-made rather than foreign goods. He said further that he hoped to hold the home market by keeping the company's pump out of the hands of his competitors in the Empire.

I have in my hand a letter from a Boston paper of high standing asking whether American-made machines are sold here 20 to 30 per cent cheaper than at home. I answer, no, but that American patented machines are. A knitting machine invented in the United States, of which formerly a few were sold here, enough at least to serve as models, are now being made at or near Carmstadt, not far from Stuttgart, Würtemberg, for 30 per cent less than is asked for the same machine, *i. e.*, American made, in the United States. What is true of this knitting machine is true also of every machine not protected by patent rights taken out here. Sewing machines, agricultural machines, clipping machines, etc., are all copied, made, and sold here, and, as a rule, are 25 to 30 per cent cheaper than with us. There is no sense in sentimental complaint. The Germans may be morally wrong in thus appropriating our inventions; but as long as their laws allow us to secure our rights we are to blame for not doing so.

Recurring to the pretended purpose to act as agents, American manufacturers can get no better advice than that given by Commercial Agent Smith, at Mayence,† to give their goods to carefully selected agents and not to indifferent big houses in Hamburg, Bremen, etc. These people like to save at every point. They think they might as well have the amount made by an agent, hence they desire often to deal direct. A good plan for Americans with specialties would be to exhibit at the fairs and expositions (*Austellungen*), many of which are held in different parts of Germany every year.

J. C. MONAGHAN,
Consul.

CHEMNITZ, *February 4, 1894.*

* Patent rights must be applied for simultaneously with the application in the United States.

† "American Manufacturers at Fault," No. 159, p. 407.

METAL INDUSTRY OF LUXEMBURG.

[From the annual report of the Luxemburg Chamber of Commerce; translated by Vice-Commercial Agent Murphy.]

The condition of the Luxemburg metal industry in 1891 was, in general, not very favorable; but still, under the circumstances, the results were relatively satisfactory. In 1892 the retrograde movement continued, and, except in the period from April to June, there was a constant decline in selling prices.

At the time when the Grand Duchy became a member of the German customs union Germany constituted the principal market for its products. If it is desired to investigate the causes of the present condition of the Luxemburg industry, it will be necessary first to consider what have been the factors which have exercised an influence on the progress of affairs in the country which, above all others, consumes Luxemburg castings of iron and steel.

The first cause is that the constant diminution of German exportation has resulted in a decline of the value of the products of Germany's metal industry. Almost all the countries which formerly supplied their wants to a larger or smaller extent in Germany (the United States, Russia, France, etc.) have adopted the protective system, and have imposed increased duties upon foreign products which render possible their importation only in rare cases.

Other countries, South America, Brazil, Australia, etc., have been, or are still, a prey to revolutions, wars, or financial crises, which render it impossible for confidence to revive, credit to recover, and affairs to resume their normal course.

Finally, the commercial treaties of long duration which Germany has made with Austria, Italy, and Switzerland have so far done little for the iron and steel industry.

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It seems probable that so long as new markets can not be opened to the industry in Asia and Africa, Germany's exportation will not regain its former proportions. This diminution of exportation has naturally weighed heavily upon the German domestic market, and the consequent disproportion there between the supply and the demand has been the second cause of the difficult situation of affairs in that country. Who will to-day deny that there has been overproduction in the metal industry? This has certainly been the case in Germany. This state of affairs exists, since it has been proved that without exportation the German industry can not continue to develop normally, and that the exportation is falling off; it exists, since—owing to the continued fall in selling prices—the producer is obliged uninterruptedly to study the means of reducing his costs of production, and since such reduction is obtainable only by distributing the general costs among masses of products

which become larger and larger with each reduction of cost. It exists also, perhaps, in consequence of the social question, which forces, in a certain way, the employer to provide the means of existence for his workmen, whose claims, owing to the agitation kept up by the socialists, are becoming more and more pronounced.

This overproduction was the more marked in 1892 because it contrasted with a notable diminution of orders in the local market.

A third cause of the unfavorable situation of affairs in Germany was that no great enterprises were prosecuted during the year. The railway authorities ordered a minimum of rolling stock. The Ministry of War and of Marine gave few orders. Intermediary commerce handled only what was strictly necessary, striving to empty its warehouses and thus speculating in the further fall of prices.

The fourth cause of the stagnation of affairs in Germany in 1892 was the uncertainty in regard to domestic politics. Every one remembers the debates in the Reichstag in connection with the military bill, the rejection of the bill, the dissolution of the Reichstag, the new elections, and finally the enactment of the bill in question, which was uncertain until the last moment.

This uncertainty in politics did much injury to the commerce and industry of the country, already in such an unhealthy condition, owing to other circumstances which made it difficult to interest capital in new enterprises.

Another event, not less fatal to the development of commerce, perturbed Germany. This was the cholera, which made its appearance during the second half of 1892, infecting northern Germany and especially Hamburg, claiming many victims and completely paralyzing traffic.

The only redeeming feature of 1892 was the crops, which were, on the whole, good. Unfortunately, however, the crops alone were unable to overbalance the obstacles to normal progress.

The principal causes have now been enumerated which brought about in Germany in 1892 the prolongation of the unsatisfactory condition of the metal industry.

Attention is now invited to the influence which this condition of affairs had upon the industry of the Grand Duchy of Luxemburg.

The iron manufacturers of the Grand Duchy of Luxemburg participated in the augmentation of production above mentioned. They depend for their coke on the syndicate in Bochum, Germany. In order to compete with foreign countries, and especially with the industrial center of the French department of Meurthe-et-Moselle, the Bochum syndicate finds it necessary to sell coke there at excessively low prices—at the prices at which the coal for the coke is purchased in Germany. For the same coke, the Grand Duchy of Luxemburg must pay one-third more. As, therefore, the Luxemburg iron manufacturers are dependent upon the Bochum syndicate, they have been forced to seek to overcome this disadvantage by increasing their production in order to decrease the production cost of their cast iron by appor-

tioning the general expenses among larger quantities of products. Were it not for this augmentation of production, the accumulation of stocks could be avoided. Naturally, as far as prices are concerned, owing to the general situation of affairs, and in order to combat foreign competition, considerable concessions had to be made with every new sale, and had it not been for the understanding between the forge masters (manufacturers) of Luxemburg and Lorraine in regard to the regulation of production and sales, there would undoubtedly have been a much more rapid decline.

This understanding, which has existed for thirteen years, shows itself day by day more of a safeguard to the common interest, which is constantly becoming more and more menaced by competition. In proof of this, the fact need only be cited that the German Minister of Railways will probably yield to the entreaties of his compatriots of the Rhine and Ruhr districts and accord to them a tariff for the transportation of the minerals of the Grand Duchy of Luxemburg and Lorraine to the railway stations of the German blast furnaces, a tariff which will represent a reduction of 2 francs (39 cents) per ton of minerals and of 4 francs (77 cents) for every ton of castings for the fabrication of which this primary matter serves.

There is still another request before the Minister by which the tariff will not be restricted to the railway stations of the blast furnaces, but will extend also to Oberlahnstein, in order to permit the transportation of the minerals from that place by water down the Rhine.

This tariff may seriously injure the Luxemburg metal industry, and if the minister goes farther and extends the application of the tariff to Oberlahnstein, the blow to the Lorraine-Luxemburg industrial district may be very severe.

Another menace lies in the execution, more or less remote, of the project of making the Mosel navigable from Metz to Coblentz.

The establishment of the tariff mentioned above would greatly injure Luxemburg iron manufacturers, and the realization of the project for making the Mosel navigable might well have fatal consequences for the metallurgic industry of the Grand Duchy of Luxemburg.

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MINING AND METALLURGY IN THE GRAND DUCHY OF LUXEMBURG.

Mines.—Number of mines, 56; production, 3,370,352 tons; value, $1,552,420.78; number of workmen, 4,066.

Blast furnaces.—Number of blast furnaces, 22; number in operation, 21; production—forge pig, 118,222 tons; steel pig (Thomas), 344,986 tons; foundry pig, 123,307 tons; total, 586,515 tons; value, $5,288,425.52; number of workmen, 1,765.

Foundries.—Number of foundries (all in operation), 8; production, 6,281 tons; number of workmen, 244.

Steel works.—The rolling mill and steel works at Dudelange produced in 1892 in ingots, blooms, billets, plates, complete and semicomplete products, 103,310 tons; value, $1,931,962.57; number of workmen, 640.

PEAT FUEL IN GERMANY.

The high prices demanded for coal and other fuel and the severe character of the winters in recent years, taken in connection with the dull times prevailing on both sides of the Atlantic, have raised the question of obtaining cheaper fuel to a plane of the highest importance.

Such is the introduction to an article that recently made the rounds of the American press. This, in addition to earnest inquiries from the Northwest of the United States, addressed directly to me, has caused me to give careful attention to the process by which many parts of the German Empire secure their supplies of that comparatively inexpensive, but yet satisfactory, fuel—peat, or turf.

Peat, or turf, is used throughout Europe generally, wherever the ordinary cost of its production is not materially increased by cost of transportation. In the large and small cities, as well as in the country districts, it is used for fuel; in fact, in many localities it is the only substance used for heating purposes. It is used likewise in industrial establishments, but its use in locomotives had to be discontinued in order to prevent danger of forest and field conflagrations.

According to experts on the subject, peat is composed of the following elements, the proportions varying with the respective qualities of the peat: Carbon, 40 to 60 per cent; hydrogen, 4 to 6 per cent; nitrogen, 25 to 35 per cent; oxygen, 1 to 6 per cent; and ashes, 1 to 15 per cent. Of the entire superficial area of Germany, about 5 per cent is covered by peat bogs.

PEAT BOGS OR MOORS.

Peat is the product of decayed organic matter. The main cause of the transformation of vegetable substances into peat (in German, *Verterfung*) is water of a certain composition and temperature, which, being almost still or flowing slowly in or above the earth permits of the mossy development of swamp plants and at the same time preserves the latter from total decomposition by reason of exclusion of the air.

These conditions are found to exist more particularly in the temperate zone, where the necessary variations of temperature occur, and where tracts of land are found whose impervious beds lead to continual accumulations of water, while, on the other hand, other portions of territory, with loose and penetrable beds, especially in regions inundated by the overflowing of rivers, are subjected periodically or continuously to an extraordinary saturation.

The various theories that have heretofore been advanced to account for the origin and development of peat bogs generally agree that the moors are the product of a more or less extensive decay of certain plants in a mass of vegetation, which, under favorable conditions as regards locality, climate,

and moisture, is continually being renewed in one section and matured in another.

The upper layer of peat or turf, which consists for the greater part of varieties of moss, is, when broken into fragments, a loose, fibrous substance, a mixture of root fibers, leaves, stems, etc. The intermediate stratum, wherein the decomposition of the various materials has reached a more advanced stage, constitutes the main mass of the peat, often containing trunks of trees and roots, and is called "peat fiber." The bottom layer, known as "pitch turf" (*Pechtorf* or *Specktorf*), consists of a black, compact, pitchy mass, which shrinks rapidly on being separated into small pieces. It has, when cut evenly, a smooth, wax-like surface, contains the greatest amount of nitrogen, and consequently is the most valuable for heating purposes.

Every rational operation of peat bogs or moors must be begun by the draining of the territory to be worked, *i. e.*, the lowering of the water level in the regions immediately to be worked. This draining must be undertaken sufficiently in advance of the working of the peat moor itself, in order that the territory in question may attain the requisite degree of dryness. Even after this has been effected the peat still contains water in quantity equal to from 70 to 80 per cent of its weight, and this remaining moisture is then almost entirely removed by successive processes of drying in the air, manipulation with machinery, or subjection to artificial heat. Until within the last few years manual labor has been employed to work these peat bogs, but a very ingenious machine has been invented to take its place. This machine consists of three lancet-like knives, set in a square prism with open front, which, by operation of a toothed rod, cogwheel, and crank, are sunk into the peat, cutting out a corresponding square prism of peat, which is received upon a horizontally working shelf and removed by a simple reversing of the above-mentioned contrivance. These machines are manufactured by the following firms: R. Dolberg, Rostock (Mecklenburg); C. H. Hall, Berlin; and Charles Muellers, Demmin (Pomerania).

Another method consists in plowing and harrowing the bog or moor by the use of steam power and wire cables, the material for which is manufactured by Heinrich Lanz, of Mannheim.

The process of drying the peat or turf, in so far as small moors are concerned, consists simply of exposure to the open air. When extensive territories are worked, artificial drying is, of course, resorted to, and the expense involved in the latter operation is by far the greatest incurred in the production of peat.

In Germany the following kinds of peat are known: (1) Cut peat (*Specktorf*), which is cut into the form of bricks by hand spades or special machines; (2) molded peat, which is produced by cutting the peat mass into irregular pieces, mixing it with water and then molding it into the respective forms; (3) machine or pressed peat, the result of pressing the turf, after previous separation, into pieces and drying in ovens in suitable molds. In the category of "machine peat" is also included the so-called "ball peat" (*Kugeltorf*)—

globes of turf of about 4 inches in diameter, made by passing the turf pulp through specially contrived appliances. In the peat works at Haspelmoor, and Kalbermoor, in the neighborhood of my district, the moor to be worked is first freed from vegetation, leveled, plowed, and harrowed, and the loosened peat broken, so as to be exposed to the action of the air. It is then gathered by means of a kind of snowplow, brought to the separating machine, taken thence to the drying oven and the press, whence it issues in the shape of smooth, shiny, dark-brown bricks.

A machine (the Schlickeysen system) in operation at Haspelmoor produces, provided suitable raw material is used, from 10,000 to 15,000 bricks in ten hours. Another machine (manufactured by Henry Clayton, Son & Howlatt, London), requiring 6-horse power to operate it, can produce from 60,000 to 100,000 bricks per day.

Interested parties, *i. e.*, those contemplating the construction of peat works, should never lose sight of the fact that from the very beginning every prolonged and expensive kind of manipulation is to be avoided. It is unprofitable to employ any extensive mode of operation in the production of peat, as it naturally comes into competition with coal, which contains a greater amount of combustible ingredients. The cost of constructing a plant for coal demands a considerable outlay in the first instance, but the subsequent actual production resolves itself into the mere process of mining.

Mr. Hugo Classen, of Ansbach, Bavaria, engineer and technical expert on the subject of peat production, has superintended the construction of several of the most extensive peat works in Germany, and consequently is regarded as an authority in the matter. He has, at my request, placed himself at the service of those who desire further information, and recommends the following works as especially adapted for the preliminary study of the question: A. Hausding's "Industrial Production and Use of Peat," published by P. Parey, Berlin; Dr. A. Vogel's "Practical Guide for Estimating the Comparative Values of Peat Moors," published by Fleischmann's Publishing House, Munich; Dr. v. d. Goltz's "Handbook of the Entire Land Culture" (vol. iii), published by H. Laupp, Tuebingen; and Drs. E. and K. Birnbaum's "Peat Industry," published by Fleischmann's Publishing House, Munich.

PEAT COMPARED WITH OTHER FUEL.

The experiences of recent years, embracing numerous instances of failure, have demonstrated the expediency of intrusting the constructing of peat works only to competent and experienced experts.

The following figures, indicating the relative powers possessed by various kinds of fuel for converting water into steam (kinetic power) will render it possible to institute a comparison between peat and other fuels: One kilogram (2 pounds) of wood converts into steam 3.4 kilograms of water; one kilogram of brown coal, 3.5 to 4.9 kilograms of water; one kilogram of "cut peat," 2.8 to 4 kilograms of water; one kilogram of "machine peat," 4.5 to 5 kilograms of water; one kilogram of hard coal, 7 to 8 kilograms of

water; one kilogram of medium coal, 6 to 7 kilograms of water; one kilogram of poor coal, 4 to 6 kilograms of water.

It is reasonable to estimate, on an average, that 100 pounds of peat are equal, in respect to the really available heating capacity, to 50 to 60 pounds of so-called "pit" coal (hard coal). In the peat works at Haspelmoor, which are known to be a paying enterprise, the total cost of producing 100 pounds of air-dried peat amounted last year to 36 pfennigs (8.6 cents), which low figure was secured, however, mainly by reason of the comparatively low rate of wages and the inexpensive manner of living prevailing in that neighborhood.

In Germany the relative cost of peat, as compared with hard coal, is as follows: One hundred kilograms (220 pounds) of good Zwickau hard coal cost at the mine 1.20 to 1.62 marks (28.56 to 38.56 cents), while the cost of production of the same quantity of peat amounts to from 0.30 mark to 1.40 marks (8.14 to 33.32 cents), according to quality.

PEAT FOR OTHER THAN FUEL PURPOSES.

Besides its use as fuel, peat is turned to account on this continent as a fertilizer and as building material, it being used successfully as a filler for vacant spaces, separating layers for waterworks, reservoirs, ice houses, etc. By means of a process patented by a tanner in Mayence it has also been made to do service in tanneries. The waste or superfluous particles of peat, known as "peat dust," have recently been brought into extensive use as a material for fitting up and preserving odorless vaults, an innovation deserving strong commendation, especially in localities where the sewerage is inadequate.

In Europe the countries that possess the most extensive peat bogs or moors are Ireland, Scotland, Sweden, Norway, Denmark, eastern and western Russia, Holland, Austria, Hungary, Prussia, Bavaria, Hanover, Oldenburg, and Mecklenburg. Hanover and Mecklenburg alone have from 140 to 150 square miles, and Bavaria has 22 square miles of peat moors. The territory of the United States embraces very extensive peat bogs, and local experts are of the opinion that the operation of the requisite plant for producing the article, if undertaken by competent parties, would be especially profitable in those parts of the United States where distance from the coal-producing centers places the price of the better kinds of coal beyond the means of persons in moderate circumstances.

LOUIS STERN,
Commercial Agent.

BAMBERG, *February 20, 1894.*

SISAL HEMP AND RAMIE IN JAMAICA.*

SISAL HEMP.

Sisal-fiber culture is an infant industry in Jamaica, but it is receiving considerable attention, as it has been demonstrated that there are soils in this island highly adapted to its cultivation, and that the climate is identical with that of Yucatan, where it is so extensively grown. There seems to be no doubt but that it can be cultivated here as profitably as in Yucatan.

The present governor of Jamaica, Sir Henry Blake, formerly governor of the Bahamas, where he was largely instrumental in the introduction of the sisal-hemp industry, has taken a deep interest in its cultivation since his arrival in this colony, and has done much to promote it.

The task of securing young plants to set out has been attended with some difficulty. In the year 1886, the botanical department endeavored to procure a supply from Yucatan, but the planters, wishing to retain the monopoly of the trade that brought them large fortunes, refused to export them. However, through the special request of the colonial secretary, addressed to the British vice-consul at Progresso, one dozen plants of the ordinary kind under cultivation were secured. In 1889, the government of the Bahamas forbade the export for a period of three years, but fortunately more than 20,000 plants were secured from Turks Island, and a plantation was established at the Hope Gardens, near Kingston. In 1891, the Jamaican government imported from Florida 25,000 plants of the same variety as that grown in the Bahamas. This was in addition to over 51,000 already supplied to planters and over 20,000 planted in the Hope Gardens, heretofore mentioned.

There is now a large supply of plants at the Hope Gardens, which are offered for sale at $19.45 per thousand. The planter is thus enabled to procure them at less expense than formerly. Lieut.-Col. Ward, Jamaican commissioner at the World's Columbian Exposition, has recently become interested in sisal cultivation, and has set out about 100 acres. The plants are doing well, and he is preparing to cultivate them upon a larger scale.

* VEGETABLE FIBERS.—Reports upon vegetable fibers, under various designations, viz, China grass, cosmos fiber, hennequen, ixtle, pita, sisal, etc. (flax and hemp not included), have been published in the following numbers of CONSULAR REPORTS:

Number.	Page.	Number.	Page.
3	116	95	164
6	554, 626	97	496
15	36	103	389
46	198	107	637
51	588	114	434
55	607	125	164, 168
60	114	133	279
69	273	138	384
71	409	146	441
89	381	147	506
94	432	152	68–78

The culture of sisal hemp, aside from being a source of revenue to the planter, will enable him to utilize barren land and impoverished soils, hitherto deemed worthless. The only requisites are that the soil be dry and that the rays of the sun be allowed free penetration, shade being prejudicial to the plants.

The bulletin of the botanical department of Jamaica for October, 1893 (No. 48), predicted a fair export of sisal fiber from the Bahamas in 1894 and a large export in 1895. I am informed by the superintendent of the Hope Gardens that there will be a limited supply of sisal fiber for export from Jamaica in 1895 or 1896. If the present prices continue, sisal fiber is destined to become one of the principal exports of this island, and will, no doubt, become as great a boon to this colony as it has proven to Yucatan and the Bahamas.

RAMIE.

In this connection I may state that the proposed cultivation of the ramie plant is exciting considerable interest among the Jamaicans at the present time.* Meetings, presided over by the governor, have been enthusiastically attended. The committee appointed to investigate the practicability of its cultivation has reported favorably.

I quote the following extract from the report:

> All the information obtainable tends to prove that not only will ramie grow freely in a great part of Jamaica, but that it is a plant which is well suited for cultivation by planters and small settlers alike, especially by the latter, as it requires but little original outlay, and yields quick returns. * * * With good soil and moderate rainfall or irrigation, ramie will, in Jamaica, produce four or five cuttings a year.

Steps are now being taken to ascertain the number of persons who are willing to engage in its cultivation.

Q. O. ECKFORD,
Consul.

KINGSTON, *March 27, 1894.*

TAX ON BEETS IN GERMANY.

As the tax law of May 31, 1891, has now been in operation for a year and a half, its influence upon the growing of beets and the manufacturing of raw sugar has been put to a practical test. Under the old law beets were taxed 80 pfennigs per 100 kilograms (19.04 cents per 220.5 pounds) and the manufactured raw sugar entering into home consumption 12 marks per 100 kilograms ($2.856 per 220.5 pounds.) The tax of 80 pfennigs was returned on exported sugars by way of a drawback of 8.50 marks ($2.023) on every 100 kilograms of sugar. One of the reasons for changing this system of taxation (besides the expected increase in revenue to the Government) was the desire to check, in a measure, the extraordinarily rapid and seemingly unhealthy

*See Monthly Bulletin of the Bureau of the American Republics, March, 1894—"Ramie Culture in Southern Countries."

extension which the industry had experienced during the years previous to 1891, it having developed from a purely agricultural into an immense export industry. It was claimed that this forced production and continued extension could only be restored to a healthy, natural condition by a change in the system of taxation, especially by the abolition of the material tax. The new law of May 31, 1891, which went into effect August 1, 1892, was expected to do this. This law abolished the tax on beets and reduced the export drawback to 1.25 marks (29.75 cents), to be discontinued altogether after July 31, 1897, and increased the tax on sugars for home consumption to 18 marks per 100 kilograms ($4.284 per 220.5 pounds).

Since the law went into effect, the quantity of beets grown and sugar produced and exported has continued to increase. In the campaign year 1892–'93, there was an excess over the previous year; the figures so far obtainable for 1893–'94 are in excess of 1892–'93, and all indications point to a considerable enlargement in the beet area under cultivation for the coming season. This, to a mere observer, would be conclusive proof of a flourishing industry; but, in reality, it is not. In order to reduce the cost of production per kilogram of raw sugar and to obtain a profit, the factories are forced to increase their capacity, and thus, with the increasing competition of other nations, an overproduction of sugar is being created, which will finally prove disastrous, especially to the smaller factories.

It is claimed by men in the business that the abolition of the material tax has contributed to this. To illustrate this, the development of the prices of raw sugar, the cost of beets, and the working expenses must be compared. The average price of raw sugar per 100 kilograms, excluding tax, has been reduced from 38 marks ($9.044) in 1882–'83 to 27.183 marks ($6.457) in 1892–'93, or about 28.6 per cent. The reduction is in reality even greater, as the export drawback, which amounted to 3.10 marks (73.78 cents) in 1882–'83, amounted to only 1.25 marks (29.75 cents) in 1892–'93. The average price of beets in 1882–'83 was 2.20 marks (52.36 cents) and the working expenses were 1.28 marks (30.46 cents) per 100 kilograms, making a total of 3.48 marks (82.82 cents); and in 1892–'93 the corresponding figures were 2.09 marks (49.74 cents) and 0.73 mark (17.37 cents), making a total of 2.82 marks (67.11 cents)—a reduction of only 18.9 per cent. To counteract this disproportionate reduction in the sugar prices, manufacturers see their only hope in an increased production, the general running expenses remaining the same, or nearly so. As these conditions affect all alike, a continued fight for the beets is being waged among the factories, and this fierce competition alone has, so far, saved the price of the beets from falling to the same level as the price of the sugar, and has promoted an unnatural extension in beet-growing. That the Government seems to be fully aware of this condition of the industry is apparent from a letter which the Minister of Agriculture has addressed to the president of the Landesoekonomie-Collegium, which meets on March 1, requesting the latter to carefully consider the situation.

The old material tax had, after all, a restraining tendency, as only the factories working the better raw material were able fully to reap the advantages of the system. As it requires a smaller quantity of rich beets to make 100 kilograms of sugar, and as the drawback of 8.50 marks on exported sugars was, of course, equal everywhere, the localities with good beet soil actually received a larger percentage bounty on their raw beets than others less favorably situated, which, in itself, was a certain check on the extension of the industry in the latter places. As soon as the material tax was abolished all localities were put on an equal footing. The new law, therefore, instead of checking production, actually incited it, and, as a result, districts which formerly never thought of growing beets have embarked in the enterprise in competition with the old, well-known beet districts, and although the beets are poorer in quality, the cultivators have the advantage of much lower land prices and lower wages.

It will thus be seen that the law of May 31, 1891, which was intended to settle this perplexing question of rationally taxing beets and sugar, has by no means solved the problem, and will, in all probability, have to be remodeled.

JULIUS MUTH,
Consul.

MAGDEBURG, *February 17, 1894.*

NORTH AMERICAN RAILWAY SECURITIES IN EUROPE.*

When an American, well posted on the financial policy of his country's railways, invests his money in their securities, he does so with full knowledge of the risk of such investment, whereas in Germany a large number of investors are ignorant of such facts. The private German gentleman, yea, the shrewd German business man, believes that American railway ventures are as substantial as those of his own country's private railway enterprises.

If, for instance, he buys American railroad bonds, he is under the impression that he possesses first-mortgage bonds, whereas in most cases those bonds sold on European stock exchanges are nothing more than common stocks, whose dividend-paying capacity depends too much on continual tariff reduction and rate wars consequent upon the ever-growing sharp competition of rival companies.

To be an expert on American railroad securities one has to begin with gaining an insight into their intrinsic values, for the number of American securities on the market is much larger than that of the same kind in Europe.

First in order are the railroad shares or stocks.

* Translation by Consul Germain, of Zurich, from a German newspaper, of an article written by Dr. von der Leyden, department commissioner of public works at Berlin, entitled "The Financial and Traffic Policy of North American Railways," in which it is sought to demonstrate, basing the argument on the critical experiences of 1893, that European capitalists place too much confidence in American railways. Consul Germain says that Dr. Leyden has made American railways and their financial and tariff policy a special study.

The initiatory steps necessary to form an American railroad company are much the same as those taken to start any other stock company. No State or Government concession is required. It is sufficient for a number of persons to meet, form a company with the purpose of building a railroad, name the amount of capital stock, number of shares and their par value, how many shares subscribed, and have the whole proceedings recorded in a public register.

The Government does not care whether the road to be built will be useful, desirable, or necessary; whether the capital subscribed is sufficient; and, finally, whether the payments on the subscribed stock are secured. Nor does the Government ascertain if payments on the capital stock (which often do not amount to over one per cent) have ever been made. These cares are left entirely to the parties in interest to look after.

The consequence is that in the United States original stockholders got into the habit of making no payment whatever on their stock, or, when necessary, only such minimum payment as the law may have prescribed. It naturally follows that the shares of such companies are nearly or entirely worthless. Stock is generally divided among the incorporators; some of it is often given away to persons or corporations who in the future may, through their influence and efforts, benefit the venture. It has also been a universal rule to interest, by giving them shares of stock, people belonging to law-making bodies, in order to secure their influence toward framing favorable legislation or securing large land grants and concessions from the United States Government.

* * * * * * *

Thus the shares or the capital stock play no part in the building of a railroad. For this purpose, the incorporators must look for other means. These they secure by selling bonds. These bonds pay a fixed rate of interest, and to secure the bonds the projected road is mortgaged; hence the expression, "mortgage bonds."

As an unbuilt railroad is not a very desirable collateral, and the interest on said bonds can only be paid out of the earnings, it results therefrom that such bonds can only be placed when they bear a high rate of interest (say, 6 to 7 and often 8 per cent) or when they are sold considerably under par, or, in other words, heavy concessions are made to induce people to assume such risks.

If the money thus secured is not sufficient to finish the railroad, then follows a second, third, or more bond emission (called second, third, etc., mortgage bonds), which, like mortgages in our country, are valued by their priority claim, that is, the first emission takes the preference over the second and third, etc., and is rated accordingly.

If an American railroad company can not meet its obligations, and the bondholders foreclose and dispose of the property at forced sale, the proceeds are applied to satisfy the first mortgage; then, if anything is left, the second mortgage, etc.

The American railroad bonds are no more nor less than dividend-paying papers, with the difference, however, that these dividends, called interest, are not a mere matter of conjecture, but are, on the contrary, specific as to the amount to be paid per annum, provided, of course, the earnings of the road are sufficient to meet said obligation at maturity.

Correct estimates to build and equip a railroad are, however, almost impossible; they are, as a rule, based on the experience of building and equipping former roads. In order not to scare away would-be investors these are made to appear as low as possible.

It naturally follows that the purchase of such railroad securities, even based on European views, are anything but desirable investments. Raising railway capital in such a manner involves another risk for bondholders. While, as above shown, the bondholders are the real builders of these roads, they have no voice in the management thereof, notwithstanding the fact that they are the parties furnishing the capital. The railroads are controlled and managed by the stockholders, who, not owning any of its bonds, are apparently indifferent to the success and prosperity of the road, and overlook the interests of the bondholders. As a rule, however, stockholders are anxious to see the road's earnings kept up to a dividend-paying basis.

It is often the case that railroads are inaugurated for selfish purposes, and used as a medium to subserve other interests. Roads are built to enhance the value of certain land holdings through which the road will operate, and by well-manipulated efforts to fix the rates and tariffs with the object of promoting the interest of certain lines of commerce, manufactures, and industries, which are to be created and developed by the building of said road; therefore, the railway policy is, first and foremost, aimed at the protection and enhancement of selfish interests.

Such proceedings by the stockholders are encouraged by the American corporation laws, each share being entitled to a vote, and not as here, where, with the enlargement of stock holdings the voting power is proportionately reduced.

From this we see how difficult it is to get at the exact value of an American railway investment, if its incorporated capital stock is taken as a basis. By scrutinizing this capital stock more closely we meet with additional complications, for while, as a rule, the announced classification into shares and bonds is properly maintained, the Americans have proven very ingenious and equal to the emergencies. They have created and issued new shares and bonds, simply calling them by some other name. The railroad shares are divided into common and preferred stocks. The profits, if any, go first toward paying dividends to the holders of preferred stock, leaving the residue, if any, to be divided among the owners of common stock. In the United States the issuance of preferred stock is resorted to only when it is found that the amount of money required to build the road, owing to miscalculations, falls short of the original estimates, as, also, in some cases, to operate the road in its infancy. As per report of the United States Inter-

state Commerce Commission, dated June 30, 1891, the amount of incorporated capital stock of American railways footed up $4,450,649,027. Of this, $3,796,239,374 represented common stock and $654,409,653 preferred stock, or a proportion of nearly 6 of common to 1 of preferred.

Quite different, however, is the indebtedness of American railways in relation to their intrinsic value. The obligations of said railways, which we call here "Prioritaeten" and they in America denominate "bonds," are of the same nature, and, as with us, are secured by mortgages on the franchise, roadbed, buildings, etc. The property is mortgaged to trust companies for the benefit of, and as security to, the bond purchasers. They hold said property in trust, and place the bonds on the market for the railway company's account. The value of such bonds depends, then, on the value of property so mortgaged and the total amount borrowed thereon. Now, it is certainly very difficult for a man living in Europe to pass judgment on the intrinsic value of property situated and mortgaged in America, because these pledges are of so many kinds and of such varied denominations that, to the uninitiated, they are mysteries. They are, for instance, classified as consolidated or general mortgage bonds, division bonds, or extension bonds, according to the part of the property pledged which they represent, whether a portion, a division of an existing railroad, or a prospective new railroad extension. Each of these bonds can be classed into first, second, or third place, as the case may call for, or, as is often the case, into mixed classifications. For instance, the general mortgage bonds may have prior or equal claims to the division or extension bonds, or may be classed at the tail end of the division and extension bonds.

Whoever wishes to see daylight through such chaos must naturally examine and scrutinize each and every one of these issues with the greatest care, looking minutely into every detail.

Then, again, there is another kind of bonds, which are pledged to secure the rolling stock and other movable property. These are called equipment or car-trust certificates; they are generally issued and sold to provide a fund for the purchase of the road equipment. There are, also, land-grant bonds, secured by mortgage on land owned by the company, and originally given them as a subsidy and as an inducement to build the road by the Government. Further, we find collateral trust bonds. Some of the larger railway companies own stocks and bonds of other railroads or kindred corporations. The Pennsylvania Railroad, for instance, is reputed to have among its assets $150,000,000 worth of outside securities.

Now, if such railroads are in need of funds they pledge such securities against a new bond issue, and, as above stated, call them collateral trust bonds. Once in awhile the so-called prior-lien bonds, which are issued to cover liabilities with prior rights to mortgage bonds, bob up to the surface. When such are issued to meet liabilities they take precedence over all other bonds.

The so-called income bonds are really only bonds in name, for they are secured only by the probable net receipts of a railroad; that is, the residue of its earnings after all operating expenses of the road and interest on the bonded indebtedness, etc., are paid. The payment of interest on these bonds is problematical and is nothing more nor less than a dividend which is paid only if there is a surplus after all other liabilities have been canceled. They are, however, a kind of first-class preference.

The income bonds are also divided into different rotary classes of privileges; in the balance sheets of the Pennsylvania and Reading railroad companies we find first, second, and third income bonds.

"What security do these poor, miserable kind of railway pledges offer to the investors?" justly asks the United States Interstate Commerce Commission. No railway company will resort to the issue of such bonds except as a last resort—to raise funds when its credit from all other sources is exhausted. This, however, has been done, and such transactions throw daylight on the decline of the American railway financial policy, when we find that the amount of such bonds put on the market have increased from $76,953,816 in 1889–'90 to the enormous sum of $324,288,290 in the year 1890–'91. It has, since, no doubt, steadily increased until, by such inflation, the present crisis was reached.

The total chartered capital stock of railway companies in the United States amounted on June 30, 1891, as per figures published by the Interstate Commerce Commission, to $10,265,000,000. As all the railway companies in the United States are not under the supervision of said Commission, they could make a partial report only. They have under their control a mileage of 161,275 out of a total of 168,403 miles, with an incorporated capital stock of $9,829,000,000. Of this capital, 45.28 per cent consisted of stocks and 54.72 per cent of other kinds of liabilities. Of these stocks, $2,654,000,000, or 60 per cent, have never paid dividends, and of the bonded indebtedness, $474,000,000, or 9.9 per cent, have never paid interest.

ELECTRIC-LIGHT PROSPECTS IN MESSINA.

The present contract for illuminating this city by gas expires on the 28th of March next, but, owing to a deadlock in the municipal council, the Ministry has appointed a commissary, who will act until the organization of a new body in June, and, consequently, no action will be taken until then. The only illuminating plant in Messina is the gas works owned and operated by an English company under a concession from the Crown in 1861, and which has been once renewed.

The light furnished and the prices charged are both causes of great dissatisfaction to the people of Messina. The power is of only 8 candles, and it costs about $1.92 (gold) per 1,000 cubic feet. It appears to me that there is here a great opportunity for any enterprising electric-light company, for

in Italy, as well as in the United States, the people are very willing to adopt the latest and best illuminant.

For the installation of a plant for lighting stores and dwellings and the furnishing of motive power the prospects are equally favorable. The usual place of abode in Messina, as in the majority of other European cities, is the apartment, or what we know as the "flat." The walls here are never less than 2, sometimes 3, feet thick, and are built of stone, so that the introduction of gas pipes on any floor except the first, where the connection is made from the street, is attended with so much labor and expense that very few houses, except those recently built, in which it was carried during construction, are provided with it.

No such obstacles confront the introduction through the smallest of apertures, under window jams, etc., of the tiny electric wire, which can be carried upon arms projecting from the houses, that privilege being now enjoyed by the telephone company, so that one of the largest factors in construction expense, the buying and planting of poles, is avoided.

As to motive power, there is one applicant already in the field willing to adopt it as soon as it is installed, and that is the tramway company, which runs its lines from Messina to Faro Point, a distance of 9 miles, and to Barcelona, a distance of 30 miles. At present the road is operated by dummy engines.

I realize that the first questions that will arise are, what will be the cost of constructing a plant and what will coal cost? When I say that the average price for unskilled labor is 35 cents, and for skilled 45 cents per day; that the laying of stone, including cost of material, is 50 per cent cheaper than brick; that lumber is no more expensive than in the United States; that land is remarkably cheap, and that Cardiff coal costs, delivered on the wharf, $4 per ton, I think the questions are satisfactorily answered.

Before writing this report I made a thorough canvass of the business men of the city, and they, without exception, promised their most earnest coöperation, both with their influence and their purses, to make the installation of an electric plant in Messina a success.

With the day of deliverance from the thralldom of a gigantic monopoly at hand, the advent of any Moses will be hailed with joy, and if he come from the West, with which the commercial interests of Messina are so closely allied, he will receive the heartiest of welcomes.

Let me say to those companies who may see fit to enter into competition that they should do so personally, so to speak, by sending a well-equipped representative to look over the ground and to be on hand to meet any emergency or to answer any question that may arise. To enter into correspondence and overwhelm those in authority with circulars, indorsements, etc., printed in a language that, to most of them, is unintelligible, is a sheer waste of printer's ink, stationery, and stamps. The fast steamers of the Hamburg-American line leave New York every two weeks, and land their passengers in Naples in ten days, from which place it is only a night's sail

to Messina. A personal representative will, I am sure, be productive of good results, while correspondence will only tend to fill the waste basket.

I do not wish for one moment to be understood as saying that the installation will be an overeasy task to accomplish, for the gas company is in no wise different from like corporations in the United States, and no doubt will make a bitter fight, but in this case the intruder will find helping hands awaiting him from a long-oppressed people, who will only too gladly array themselves on the side of progress.

CHAS. M. CAUGHY,
Consul.

MESSINA, *January 29, 1894.*

AN ELECTRIC LOCOMOTIVE.*

On September 15, 1830, says Mr. Emile Gautier, on the line running from Manchester to Liverpool, the first steam locomotive, "The Rocket," built by the Englishman Stephenson, was operated. Since that day this marvelous engine has not been materially altered. No doubt during those sixty-three years the locomotive has been greatly improved; numerous changes, sometimes the work of genius, have been adopted in its construction and the relation of its different parts one with another. But only these component parts of the engine have been improved; the principle has remained the same.

On February 2, 1894—a date to be remembered, for it will mark the beginning of a great epoch in the annals of science—a forward move was made which may open to transportation unexpected horizons, for it was on that day that the first electric locomotive pulling a real train rolled over real rails between Havre and Beuzeville.

This is history, and I am personally proud to have witnessed it. There is in this fact cause for astonishment for many people. In our land of France, traditionally fond of everything foreign, we generally imagine, relying on some legend hurriedly invented, the truth of which no one has ever thought of investigating, that in America railway trains propelled by electricity are innumerable. But it is only a legend, and, if over there the trams and electric metropolitans actually run through the streets, real electric traction is yet merely in a state of project. It is possible that the question of constructing an electric locomotive of great power and for long distances has often been agitated in that country, but it is certain that the question has not yet been definitely solved.

The Heilmann engine, to which the inventor has, in honor to the memory of Stephenson, given the glorious name of "Rocket," is positively the first electric locomotive that has run on any of the great railways of the world, pulling a train made up of the usual number of cars.

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*Translation of an article that appeared in L'Indépendant Rémois February 18, 1894.

The reason of it is that the problem of electric traction is more difficult and complicated than is commonly realized by the mass now ready to believe all miracles of uninterrupted current constantly produced by the fairy "electricity." Not that the problem can not be solved, not that the omnipotent magician who apparently possesses all the theoretical elements is powerless to solve it, but because the difficulties to overcome, which the smartest had failed to practically control, belong to the economic and commercial order.

For, leaving aside the traction by accumulators which, by reason of the weight, instability, and insecurity of those precarious and expensive instruments, could only be used for a motive power of short duration and small intensity, the substitution of electricity for steam implies, at the cost of risks and uncertainties as numerous as unlimited, the total change not only of the rolling stock but also of the road itself to its very depths, resulting in nothing less than a revolution, the cost of which would reach for each company at least several hundred millions. The reason of it is that electricity does not fall from the skies at the will of anyone who wants it. We have no more learned how to extract it than we have to extract azote directly from the surrounding atmosphere. We must fabricate it artificially, like all other kinds of energy, in converting heat into a chemical affinity or motive power. Hence the necessity, in order to realize the electric traction of railways, to scatter all along the track, at every 20 or 25 kilometers, central power houses, producers of power in lieu of coal stores and water tanks, sending the current to the moving trains through a conductor, a third rail overhead or underground, which, at the rate of 30 kilograms of metal per running meter and on account of the high price of copper, would cost very high. I have calculated that from Paris to Havre, independently of the cost of building and the running expenses of the central power houses, of the cost of laying and of the connections, of the probable complications and of the unforeseen accidents, the price of this cable could not be less than 12,000,000 francs. Calculate now what the expense would be for our six railway systems, not one of which could disengage itself from the transformation, and, if you have a billion too much, come forward.

Thus we were in an inextricable difficulty when Mr. Heilmann had a novel idea. Instead of generating electricity at a fixed point and sending it through a wire to the train, why not generate it on the road on the locomotive itself, converted into a rolling power house? Instead of putting in motion through the usual attachments the wheels of the locomotive, why not use the steam engine to operate a dynamo furnishing as it is needed, directly and on the spot, the electric power necessary?

No doubt, at first sight, this conception may appear illogical, for the reason that it results in a triplicate and inverse transformation, to wit, (1) heat into mechanical operation, (2) mechanical operation into electricity, (3) electricity into mechanical operation, whereas the steam locomotive merely transmutes the heat of the boiler into work. But this apparently irrational and onerous complication is redeemed by immense advantages.

In the steam locomotive the transmission of the mechanical power is obtained only through a combination of special adjuncts, of piston rods, cranks, and other stiff connections, which are, by an inevitable fatality, only put in motion with continuous elastic reactions and terrible jerks. Hence those serpentine torsions, those trepidations, all those disturbing motions known in the slang of technical men under the expressive names of "lacet" (side-rolling motion of cars) and of "galop" (gallop) which damage the strongest cars, hammer, pull out of place, and disjoint the rails, which are soon clipped and twisted as common pieces of brass.

In the electric locomotive, on the contrary, the current moves the wheels through small dynamos connected directly with the axletrees, which, by reason of being all motors, create the maximum of adherence. No more jerks, no more destructive poundings, no more undulatory vibrations; consequently, the train runs smoothly and steadily and the road itself will last twice as long.

Consider also that the electric current, instead of being distributed through heavy, cumbersome, and oscillatory pieces of machinery, is conducted through small wires liable to pass everywhere, to be given all the shapes, to be bent at will, and thus permits us to decrease the diameter of the wheels (and, as a matter of course, to lower the center of gravity of the system), to construct the locomotive as an ordinary common car, to develop indefinitely the production of the motive power, to convert all the axletrees into motors; finally, to increase in untold proportions the stability, suppleness, and power of the engine, without endangering, but, on the contrary, improving, its manageableness.

I will not endeavor to give the details of the machinery which has allowed Mr. Heilmann to accomplish with complete success these divers desiderata. The description would necessarily be incomplete and unsatisfactory were I to give it without a cut and ciphers. I will, therefore, merely state the results I have personally witnessed in the company of 200 persons, mostly all competent railroad engineers.

At eight different times in two days the electric locomotive has pulled with all ease an ordinary train of 180 tons over the 25 kilometers separating Havre from Beuzeville-Breauté, and on what is probably the worst track of the Western Railway system—that is to say, under particularly unfavorable circumstances and under a pouring rain. This locomotive of 800-horse power which, according to the predictions of "mossbacks," would never be able to start, has, with a speed of 58 kilometers per hour, climbed the heavy and 3-league-long grade of 8½ millimeters situated between Harfleur and St. Romain. The start was made so easily that on the first trip not one of the seventeen persons packed in the closest room at the fore part of the locomotive, which is used by the engineer, had noticed that the train had left the station.

In compliance with the prearranged programme, the electric locomotive has successively, without effort and accident, traveled at the increasing speed

of 65, 70, 80, 95, and even 100 kilometers (40, 43¾, 50, 60, and 62½ miles) per hour.

I know that some who dream of phenomenal speed will find the above figures rather small; unfortunately, in the question of transportation by rail there are two things equally important—the road which does not move, and the train which does. And if, theoretically, trains can be moved at a nearly unlimited speed, the tracks constructed a long time ago in view of a speed of 50 kilometers (31¾ miles) per hour, which the most sanguine then thought could not be exceeded, are limited as to their power of endurance.

When we shall have created what the railroad men call "the train 100"—that is, the train of 100 tons—running for five or six consecutive hours at a speed of 100 kilometers (62½ miles) in sixty minutes, then we shall not be far from having realized the ideal, allowing for the preservation of the actual outfit.

No doubt, after what we have witnessed, the Heilmann locomotive, which necessitates no change in the existing rolling stock, will soon realize that ideal and at a minimum expense.

Let me add that the notes with which I have prepared this article have been taken standing up on the locomotive running at a speed of 1,300 meters (1,420 yards) per minute, and I shall have said all that can be said for awhile about this marvelous engine, imagined altogether by the brain of a good Frenchman, built in France, and let us hope that, unlike the steamboat and so many other French inventions, the Heilmann locomotive will not need foreign indorsement to be finally adopted.

In the railroad game, the English with Stephenson won the first hand; Heilmann has just secured the second. Our honor and interest demand that we should not lose it.

HENRY P. DU BELLET,
Consul.

RHEIMS, *February 16, 1894.*

EXHIBITION AT BATAVIA, JAVA.

The Batavia exhibition of home and foreign art and industry was opened by the governor-general on the 12th of August, 1893, with a speech, in which he referred to the rapid progress Java has made in the last few years in improvements in manufactories, railways, electricity, etc., its increase in trade with foreign countries, and its brilliant future. He then formally opened the grounds to the public by pressing an electric button, which lighted the electric lights and was the signal for the singing of the national anthem by 1,800 children. The beginning of the exhibition, financially speaking, was far from encouraging, but during the last two months the enterprise was a great success and brought great credit to the directors.

The rainy season coming on, the exhibition was closed on the 19th of November, after having been open more than three months. Nearly every

foreign country was represented by exhibits, the United States principally by agricultural and farming implements from Messrs. Deere & Co., Moline, Ill. There was a large display of electric machinery and lights. The Java exhibits were very interesting, and represented all kinds of produce and workmanship—sugars of different grades, teas from all the tea estates of Java, different qualities of coffee, tobacco from Sumatra and Java, with all kinds of fiber plants.

The Government botanic gardens at Buitenzaig exhibited a fine display of fiber and rubber plants and Java plants of all descriptions. Javanese workers of bamboo were to be seen at work on all kinds of articles, the most wonderful of all being the hats woven by hand of bamboo fine as silk, and different articles, which, one would say, were impossible of manufacture by hand. Silk and cotton cloths woven from native threads were finished before one in a remarkably short time; also very fine cloth made from long dried grass, "alan-alan,"—some pure white and others dyed fancy colors. Bamboo buildings of all sizes and styles were also exhibited in the native quarters, among them being a large and beautiful pagoda built entirely of bamboo, and a very good imitation of the Eiffel tower. These buildings, lighted by electricity, made a very pretty appearance. Marine architecture, in all the native branches, was also well represented by craft of all sizes up to about 30 tons built entirely of teak wood without a piece of iron in their construction, and sails of fine bamboo matting. Some of these craft, used as fishing boats, are very fast sailers, and have been known, in moderate breezes, to pass the steamers trading on the Java coast.

The different woods of Java were also exhibited, and the variety was large and showed some valuable specimens.

The exhibition was closed on the 19th of November by the new governor-general—Mr. Van der Wyk—with much the same ceremony as at the opening.

B. S. RAIRDEN,
Consul.

BATAVIA, *December 31, 1893.*

AMERICAN WOOL IN BRADFORD.

During the last six weeks large quantities of American wool have been offered for sale in Bradford. This has been so unusual as to attract attention and an endless amount of gossip. It has been the subject of conversation at the clubs, on "change," and in the market. It has also had the effect of calling attention to certain grades of American wool in a way that, under changed conditions, may be of vast benefit to the wool-producers of the United States in the future. I have heard of several lots of Ohio wool, aggregating 50,000 pounds, being purchased, and have been able to verify one case, of which I give particulars. Five thousand pounds of Ohio pulled wool were purchased about two weeks ago by the Bradford firm of Francis

Willey & Co. This wool was in three grades. For one lot they paid 22½ cents per pound, for the second 25 cents per pound, and for the third lot 26 cents per pound. This wool gave the buyers perfect satisfaction. A part of it was at once sold, and is, doubtless, now in process of manufacture. The remainder they are holding for a better price. The purchaser of this wool (Mr. Willey) informed me that skin wools were the cheapest in America, because they have not there, as yet, so fully mastered the details of manipulating it as have the manufacturers here. At the present time, he says, the American skin or pulled wool (taken from the sheep after death) is the lowest in price, and has suffered the greatest reduction comparatively. This wool, as well as the regulation sheared or shorn wool of the same grade, is much esteemed in England for hosiery yarn. It is equal to and competes with the English fine crossbreds. As a general thing, the prices of all grades of American wool are now practically the same as the similar grades here, the carriage and other charges between the American port and Bradford making most of the difference against the American article. The wool merchants and manufacturers here assert that the moment the tariff bill passes, with free wool, the prices of American wool will revive, and several of them are so strong in this faith that they have, through agents, made large investments in wool now held in Philadelphia and Boston. They insist that the new impetus given to manufacturers by free raw material will cause larger quantities of the wool produced in the United States to be mixed with fine foreign wools, and that a demand for American wool for hosiery purposes would immediately set in on this side. It is already proposed by wool dealers here to exchange the grades of wool more suitable for dress goods and cloths for the American wool adapted for hosiery and other purposes. They argue that this will at once bring about renewed life and activity in the trade and raise prices.

The following are the prices (free on board at Boston, etc., net) of some of the wools which are being offered here:

	Cents.
100,000 pounds washed Ohio	24
50,000 pounds washed Michigan	24
50,000 pounds scoured, pulled, "A Super"	33
15,000 pounds scoured, pulled, low combing	27
10,000 pounds scoured, pulled, "A B Super"	12
10,000 pounds scoured, pulled, "A B Super"	17

Large quantities of other qualities are also being offered. The prices are too dear for this market to-day, but all represent wools which could be used here if prices could be made to fit.

Last August a well-known wool dealer of Bradford called upon me to advise him regarding the shipment of $20,000 in United States gold coin to Philadelphia. He stated that he owed a firm there that amount for wool, and had been cabled not to pay them by draft or check, but to export them the gold coin. He was at a loss to know where to get it. I advised him to give the order to Brown, Shipley & Co., the United States fiscal agents in

London. In an hour he came back saying his order had been accepted by this banking firm, and the coin would be sent. As this was during the so-called panic, I suppose that the Philadelphia firm had made some kind of sacrifice in order to procure gold coin, which was at that time, seemingly, a scarce article in American commerce. Later I heard some particulars of the transaction from outside sources, but not enough to quote prices definitely. The wool in question had been purchased by the Philadelphia firm from the Bradford firm and exported to America at a certain price. Later the Philadelphia house was offered American wool which would answer its purposes as well as the English wool, and at a much lower price. They accordingly purchased the American wool and sent the English product back to Bradford with orders that it be sold. It brought a much lower price than it had first been sold at on the other side, and the Bradford dealer expressed sympathy for his Philadelphia clients, whom he thought the financial depression must have greatly embarrassed. Later he learned that through substituting the American wool for the English and then receiving the $20,000 in United States coin for the returned English wool, the Philadelphia firm had made, upon the whole transaction, a very handsome profit. The wool which figured in this deal seems, however, not to have gained in popularity through its wanderings, for it now lies at the freight station of the Midland Railway, just where it was sold on its return from America.

CLAUDE MEEKER,
Consul.

BRADFORD, *March 13, 1894.*

CHILD AND FEMALE ADULT LABOR IN GERMANY.

The recently published volume of official statistics of the German Empire contains a summary of statistical information relating to child labor in German industrial establishments during the year 1892, and covers facts regarding the younger male and female workers in general. This article reveals the welcome fact that in German factories child labor, if not entirely abolished, has, to a very great extent, been done away with.

The article says:

Last year (1892) only 11,212 children under 14 years of age were employed in factories, as compared with 27,485 in 1890. Of young people between the ages of 14 and 16, 197,039 were employed (128,304 males and 68,735 females), as against 214,252 in 1890. The total number of youthful laborers employed, therefore, was 208,251 (135,619 males and 72,632 females), while in 1890 the figure reached 241,737 (156,008 males and 85,729 females). The greatest proportion of these young laborers were employed in the manufacture of textiles, *i. e.*, 55,473, or 26.3 per cent of the total number. In the manufacture of stone and earthenware products, 26,372 were employed; in working of metals, 24,833; and in the production of articles of food and luxury, 23,175. The number of adult female workers in factories has, for the first time, been ascertained for the year 1892, namely, 567,234, of which number

225,255 were from 16 to 21 years old and the remainder (341,979) over 21 years of age. One-half of all adult female laborers (283,017) were employed in the manufacture of textiles, 78,758 were occupied in the production of articles of food and luxury, 44,283 in the clothing and cleaning industry, 37,856 in the paper and leather industry, and 34,511 in the manufacture of stone and earthen products. The remaining industries employed a lesser number of female laborers.

LOUIS STERN,
Commercial Agent.

BAMBERG, *March 7, 1894.*

SILK CULTURE IN SHANTUNG.

In his report for the decade ending 1891, the commissioner of customs at Chefoo makes some remarks on silk culture which may prove of interest to American cultivators.

I inclose herewith a clipping from the Shanghai Mercury, which is a reprint of his observations.

CHAS. DENBY,
Minister.

PEKING, *February 8, 1894.*

SILK CULTURE.

[From the Shanghai Mercury.]

A very important industry of the province [Shantung] is the rearing of silkworms and the manufacture of silk. Silk is divided into two kinds, the produce, respectively, of the worm fed on oak leaves and that fed on mulberry leaves. The oak-leaf silk is by far the most important to the province, although it is of an inferior quality, as, owing to the comparative ease with which the worm is reared, it is produced in great quantities. The cocoon is kept in the house during the winter, the moth appearing when warm weather comes. By the time the worm is hatched the oak leaves are generally out, and it is at once transferred to the trees, when, beyond slight protection from birds, it practically needs no further care until the cocoons are ready. Should the oak leaves be backward, pending their appearance the worm is fed indoors on other leaves. The trees must be at least eight years old for the worms to produce good silk. The cocoons collected from an acre of healthy trees should yield 3 or 4 catties* of silk. The first crop of cocoons is mostly allowed to hatch for the production of an autumn crop, the latter silk being better in color and stronger. The silk, pale brown in color, is reeled and woven by hand labor, the usual size of the pieces being about 20 yards by 20 inches; a piece weighs 2 catties, more or less, according to quality, the exact weight being recorded on the edge, as, if above 2 taels† in value, it is sold by weight.

Of late years the material manufactured for the foreign markets has improved greatly in both reeled and woven silk. The great improvement in the reeled state is that the hanks are less than one-half the circumference they were ten years ago, which is a matter of importance, as according to the size of the hank the framework from which it is woven must be larger or smaller; consequently the long hanks are often refused in the European markets, as they require too great a space in the factory. During the last two or three years some workers have taken great pains in reeling to keep the silk clean and of an even thickness,

*1 catty=1.333 pounds avoirdupois. †1 tael=$1.20 United States gold.

while they have contrived to introduce a twist in imitation of the "filanda" manufacture. This silk has commanded a far better price than the ordinary article, and will probably increase yearly, especially as silk of any quality commands far more per picul* if sold in large lots than when sold in small parcels, for in the foreign factories each alteration in quality necessitates a new arrangement of the machinery.

The weaving of the silk for foreign consumption has improved, any width that may be in demand being now undertaken, instead of the formerly uniform width of 20 inches. Wide pieces command a better price per catty, according to the width. Fancy patterns are also undertaken. Little improvement has taken place in the dyeing, and only inferior qualities or spoilt pieces are dyed, as the different threads take the dye in varying shades.

Of late the demand from abroad for the commoner pongees has been far in excess of the supply, the smallness of which is possibly accounted for by the fact that coarse pongees are worn a good deal by the Chinese middle classes, as they cost little more than imported cottons and are far more durable, while they wash equally well; in fact, all Shantung pongee is washed before coming into the market, being made very dirty in weaving. In all qualities of the woven articles it is calculated that the raw material represents about half the value of the piece, labor and transport making up the balance. The yellow silk, though yielding a much better price, is not produced to anything like the same extent, as it entails much greater labor. The worm has to be kept in the house, and mulberry leaves provided for it daily. The mulberry trees are sometimes planted in fields, an acre supporting from ten to twenty, according to the soil, but the more frequent position for them is on the edge of terraces, the corners of yards, or any spot which can not otherwise be used. The tree should be 10 years old for the worms to produce good silk, and such a tree should yield 20 to 30 catties of leaves a year. Twenty catties of leaves produce one catty of cocoons, which yield about one-tenth of a catty of silk, the quality varying according to the richness of the leaves. The market price of leaves is ordinarily about 10 cash per catty. The common practice in Shantung is to plant mulberry seedlings in masses in the corners of fields and to repeatedly cut them down; by this means a large number of young shoots are produced, which bud early in the spring, and these tender leaves are used to feed the young worms when first hatched, the leaves on the big trees being ready for them when they are older. The silk is far inferior to that produced in Kiangsu and Chekiang, by reason, it is said, of the mulberry trees being grown in Shantung from slips instead of by grafting, as in the other provinces, the produce of a graft being a much thicker and richer leaf. This silk is used almost entirely for making silk thread; it is reeled here by hand, and exported in that state. A considerable quantity goes overland to Peking.

WINE PRODUCT OF ITALY AND OF THE WORLD.

Italy is the first wine-growing country in the world. Her export consists principally of the rough wines and must, or grapes in fermentation, which are mixed, refined, and clarified by skillful chemists at Bordeaux and elsewhere, much to their own profit and Italy's loss.

For the last two years (1892 and 1893) the grape crop has been so abundant that in many districts of southern Italy there were not barrels and demijohns sufficient to hold the pressed juice, and cisterns were emptied of water and filled with wine.

The production in France, where new vineyards that have replaced the phylloxera-smitten grounds are now beginning to bear, has this year been so abundant as to materially influence the demand for Italian wines from

*1 picul=133⅓ pounds.

that country; consequently Italy has to find new markets for her immense and varied production of wine.

In 1891 grapes were cultivated on 3,443,713 hectares (1 hectare=2½ acres), being an increase of 13,351 hectares over 1890. The production of wine was 36,992,135 hectoliters (1 hectoliter=26.417 gallons) in 1891, against 29,456,809 hectoliters in 1890, and the medium quantity per hectare was 10.74 hectoliters, while that of 1891 was 8.59 hectoliters.

Besides the production of wine, grapes for the table, fresh and dried, to the amount of 310,000 quintals, must be added to these figures.

It is, therefore, easily demonstrated that it is no exaggeration to claim for Italy the first place in the world as a grape-growing country.

The gross value of the crop equals 1,200,000,000 lire ($231,600,000) a year, while the grain crop is only valued at 800,000,000 lire ($154,400,000). The value of the wine crop is one-sixth of the whole agricultural production of Italy.

Wine takes the first place among agricultural products here, and is the second among all exported articles from this country, silk occupying the first place. Among nations exporting wine, however, Italy only ranks third; Spain being first, France second, and Portugal fourth.

Italy has no rival to fear in North or South America as wine-growing countries; California alone may be considered a possible competitor, but not essentially so. If other parts of the United States—where progress has been slow, with varied success—were specially adapted for profitable wine-growing, our active and intelligent agriculturists would long ago have devoted their attention more largely to it.

One reason which will always militate against the full success of vineyards in the United States is that the laying out of a vineyard properly, as is done in Italy where the whole ground is turned up to a great depth, is too costly and would require immense capital. Our cheapest agricultural laborers earn $1 and more a day, while the Italian works in his own country for 30 cents and labors longer than is the custom with us.

Our capitalists in California are handicapped by the outlay for labor, which may be reckoned at from four to six times more than the cost of working vineyards in Italy.

Wine is not like grain or rice, which never change in character. In Italy it varies exceedingly, and there is no part of the world where such a number of different types are produced. To pretend that this country should produce one type is absurd, but the different regions ought to make a cheap table wine, light and sound, which should always preserve the same characteristics, as has been successfully done in Sicily by Ingham, Woodhouse, Florio, and others for the Marsala, known in the United States as Sicily Madeira. To accomplish this there is no way except by founding societies with enough capital to keep new wines, watch them through their various fermenting processes, and clarify them. After they have attained proper age they become fit for export.

The product should be pure, well prepared and attractively bottled, preserving a constant and unvarying type, and sold at a price only sufficient to pay a fair profit on the capital invested. It should be the aim of Italian exporters to follow the maxims mentioned above and gain a market among the masses for a cheap, sound table wine. Once this market is secured, the production of finer and more expensive wine is certain. But for the present the markets of the world are held by France, Spain, and Portugal.

Within late years an enormous progress has been made in the distillation of spirits in Italy.

WINE PRODUCTION OF THE WORLD.

The wine production of the world is shown in the following table:

Countries.	Average production, 1886–1890.	Production, 1890.
	Hectoliters.	*Hectoliters.*
Italy	31,363,877	29,456,809
Spain (1890)	29,875,600	29,875,600
France	27,570,785	27,426,387
Austria Hungary (1890)	9,570,025	8,340,854
Portugal (1890)	6,000,000	6,000,000
Russia	2,458,000	3,356,670
Germany	2,350,255	2,974,593
Bulgaria	3,400,000	2,911,184
Greece	2,584,500	2,500,000
Turkey	2,500,000	2,500,000
Roumania	1,850,000	1,850,000
Switzerland	1,380,000	1,133,000
Servia (1889)	832,338	832,338
Belgium (1880)	1,500	1,500
Algiers	2,311,288	2,844,130
Argentine Republic	1,500,000	1,500,000
United States	1,013,729	905,036
Chile	724,000	784,000
Cape colonies (1889–1890)	241,190	212,487
Australia	133,930	181,010
Peru	100,000	100,000
Tunis (1888–1890)	33,343	53,000
Brazil	4,000	4,000
Total	127,800,380	125,672,358
Total in gallons	3,370,102,638	3,329,891,970

EXPORTS OF VINE PRODUCTS.

In concluding this report, I give the following table of the products of the vine exported from Italy in five years, and in noting that the third place is taken by tartaric products generally, classed under the head "argols" in the exports from this part of the country, I would observe that the returns from the consulate at Naples show that $752,912 worth of argols left that port for the United States in 1892.

Argols are the scraping of the deposits in wine barrels, which are very valuable, and contain large quantities of cream of tartar. This district fur-

nishes large quantities which are gathered by agents about the country, who take them to a shipper at Naples, in whose hands this whole business lies.

Products.	1888.	1889.	1890.	1891.	1892.	Average, 1888–'92.
	Lire.	*Lire.*	*Lire.*	*Lire.*	*Lire.*	*Lire.*
Wine in barrels and casks	54,060,600	47,905,218	34,364,426	37,073,280	55,594,818	45,799,668
Wine in bottles	4,718,350	5,178,425	5,503,925	3,407,580	4,633,330	4,688,322
Tartaric acid, argols, etc	25,693,200	25,004,730	20,228,530	17,454,000	15,101,240	20,696,340
Fresh grapes	1,129,783	686,728	1,589,722	2,488,487	3,170,244	1,812,993
Dried grapes	468,990	190,350	604,550	223,020	245,745	346,531
Total	86,070,923	78,965,451	62,291,153	60,646,367	78,745,377	73,343,854
Total value of all exports, except precious metals	891,934,539	950,645,760	895,945,253	876,800,155	957,895,378	914,644,217
Percentage of wine and products thereof to the total export	*Per cent.* 9.65	*Per cent.* 8.31	*Per cent.* 6.95	*Per cent.* 6.92	*Per cent.* 8.22	*Per cent.* 8.02

IMPORTS AND EXPORTS OF WINE.

The importation and exportation of wine in bottles and barrels, for twenty years, is given in the following table:

Year.	Importation.		Exportation.	
	Barrels.	Bottles.	Barrels.	Bottles.
	Hectoliters.	*Number.*	*Hectoliters.*	*Number.*
1873	149,409	430,600	290,530	1,804,300
1874	111,369	389,400	259,482	1,273,700
1875	51,426	370,000	352,195	1,080,000
1876	69,628	374,500	498,212	863,300
1877	97,866	323,800	354,714	824,800
1878	39,608	320,700	525,057	1,177,600
1879	26,799	318,100	1,063,114	1,346,700
1880	28,353	331,800	2,188,817	1,671,100
1881	34,109	391,500	1,741,710	1,780,100
1882	57,610	313,500	1,312,388	1,946,100
1883	43,360	332,100	2,611,355	1,770,500
1884	112,860	292,800	2,361,909	1,934,400
1885	312,645	323,000	1,463,602	1,722,600
1886	253,367	331,200	2,330,969	2,279,200
1887	132,520	359,800	3,582,104	2,098,000
1888	37,233	178,200	1,802,020	2,696,200
1889	14,353	139,400	1,408,977	2,959,100
1890	14,480	228,500	904,327	3,145,100
1891	8,495	223,400	1,158,540	2,065,200
1892	8,486	201,500	2,417,166	3,195,400

ALCOHOLIC GRADE OF ITALIAN WINES.

The following table gives the medium alcoholic grade per cent in the wines of the different provinces.

Provinces.	Average quantity of alcohol.	Number of samples used for an average.
	Per cent.	
Piedmont	10.23	1,533
Lombardy	9.57	584
Veneto	9.78	666
Liguria	9.35	539
Emilia	10.53	1,387
Marche and Umbria	10.57	708
Tuscany	10.94	1,191
Lazio	11.19	473
Adriatic meridian	12.46	1,356
Mediterranean meridian	11.36	1,007
Sicily	13.40	1,851
Sardinia	12.98	542
Total	11.27	11,837

GLUCOSE IN ITALIAN MUST.

The following table contains the proportions of glucose in the must from 1,665 samples analyzed:

Provinces.	Average quantity of glucose.	Number of samples used for an average.
	Per cent.	
Piedmont	21.12	40
Veneto	17.61	107
Emilia	18.43	198
Marche and Umbria	19.24	176
Tuscany	16.64	15
Lazio	21.59	70
Adriatic meridian	21.21	73
Mediterranean meridian	20.42	239
Sicily	21.52	511
Sardinia	19.17	236
Total	20.11	1,665

For the information contained in this report I am indebted to Comm. Vittorio Stringher, librarian at the Ministry of Agriculture and Commerce.

HENRY GREENOUGH HUNTINGTON,
Consul.

CASTELLAMMARE, *March 17, 1894.*

ABOLITION OF SPECIAL RAILROAD TARIFFS ON GRAIN IN GERMANY.

As the abolition of special tariffs on grain has been decided upon, to take effect probably on August 1, 1894, or perhaps even sooner, it is proper to give a short description of the system of special tariffs and to see what influence the change may have on wheat imports.

The eastern and northeastern portion of Germany is largely a farming country. The land is held, not by small owners, but principally by the nobility. As wages are low, all kinds of grain can be produced there more cheaply than in any other part of Germany. In the year 1891, when the crops throughout Germany failed, these parts of the country had a surplus, and to make this surplus more accessible, and to help the western and southern parts of Germany to obtain cheaper bread, the Prussian state railways introduced the special tariffs (*Staffel-Tarife*), partly of their own accord and partly at the instance of the Conservative party, which is largely composed of large farm-owners. The system was as follows: Instead of charging a fixed rate per kilometer, as formerly, the rate was decreased as the length of the trip increased. Thus, the charge for transporting one ton (2,200 pounds) one kilometer (0.621 mile) was fixed at 4½ pfennigs (1.07 cents) for the first 200 kilometers (124.2 miles), 3 pfennigs (0.71 cent) for the next 100 kilometers (62.1 miles), and 2 pfennigs (0.47 cent) from 300 kilometers (186.3 miles) upwards. For example, to transport one ton of grain 200 kilometers costs 200×4½ pfennigs, or 9 marks; to transport the same 600 kilometers costs only twice as much (not three times as much), or 18 marks, as follows, viz: The first 200 kilometers, 200×4½ pfennigs, or 9 marks; the next 100 kilometers, 100×3 pfennigs, or 3 marks; the next 300 kilometers, 300×2 pfennigs, or 6 marks; total, 18 marks. In other words, the railroad carried the grain over a long distance free for the last 200 kilometers, for which the neighboring farmers had to pay 9 marks.

This system worked well during the famine year, and was not complained of, but when better crops were harvested the farmers in western and southern Germany felt the competition of this eastern grain, which was flooding their markets by reason of the cheap freight rates and was depressing prices. Land is worth more in western and southern Germany, wages are higher, and consequently the product is dearer, and it could not compete with the eastern grain under the circumstances. Complaints became so loud that a movement was started, headed by the Bavarian interests, to have the system abolished, and the Prussian government (this is not an affair of the Empire), seeing its justice, withdrew the concessions made for the transportation of eastern grain. Prussia was, in a certain sense, forced to do so, as under the new Russian treaty, the same privileges would have been accorded to Russian grain, and the southern delegates would probably never have voted for the

Russian treaty unless they had been assured of the abolition of these special tariffs.

I can see some advantage to the United States in this legislation. Most of the grain exported to Germany from the United States goes up the River Rhine and is stored at Mannheim, the principal market for foreign grain, from which place it is distributed through the southern and central parts of Germany. As competition with this eastern grain is lessened, a larger exportation of the United States surplus to Germany will doubtless ensue.

JULIUS MUTH,
Consul.

MAGDEBURG, *March 15, 1894.*

ABOLITION OF PROOF OF IDENTITY IN GRAIN EXPORTS FROM GERMANY.

On March 14 the Reichstag decided to abolish the proof of identity in grain exports, to take effect May 1, 1894. The principal reason for doing this was to indemnify, in a measure, the eastern and northeastern farmers for the loss which they will suffer by the abolition of the special tariffs on grain.

Since the imposition and the repeated increase of the duty on grain, the export of German grain has fallen off considerably; in fact, it has come to a standstill. The apparent reason for this is that, in consequence of the duty, the inland price of grain rose beyond the world's market price, thus disabling the German farmer from competing abroad. As Germany can not raise grain enough to supply her own wants, and must of necessity import large quantities every year, this loss of foreign markets might not appear at first sight a great detriment to the agricultural classes, but in reality it is. While in nearly every part of the Empire the crops do not suffice to supply the local demand, the northeastern provinces have a large surplus on hand every year. It was considerably cheaper to ship this surplus by water, principally to Norway, Sweden, and England, than to transport it by rail to southern and western Germany. The introduction of special railroad freight tariffs for awhile adjusted these matters, but since they have been abolished the northeastern farmer is again at a great disadvantage. Together with the farmers, all the middlemen, and especially the seaport trade at Stettin and Dantzic, had to suffer.

The abolition of the proof of identity should remedy these evils. Formerly the Government remitted the duty paid on exported grain, provided the identity of the exported and imported article could be proved. This being in most cases impossible, the clause was of little value to merchants, and helped only large dealers, who could put the imported article in bond and thus prove the identity.

The new law provides that when wheat, rye, oats, pulse, or barley are exported in quantities of at least 500 kilograms (1,120 pounds) the exporter

shall receive a certificate which entitles him to import free of duty within a certain time (not longer than nine months) a similar quantity of a like article. Millers and maltsters, when exporting, shall have the privilege of importing free of duty a quantity of grain corresponding to the quantity used in the manufacture of their exported products. The law goes a step further and allows these certificates to be used also in importations of any other merchandise, subject, however, to such regulations and restrictions as the Bundesrath shall issue. This broader use of the certificates is granted to localize them in the place of their origin, and prevent them from floating about the country. As the grain-exporting sections will not, as a rule, import any other grain, but will need other commodities, the certificates, if limited to this product, would naturally not be used there, but sold to sections where grain is imported. To check this traffic the above provision has been made.

So far as American trade is concerned, the abolition of the proof of identity will not injure, but, in my view, will be an aid. It will stimulate grain imports generally, as the German dealers need not fear being handicapped in case the market is glutted, and can export again without proving the identity of the grain, receiving certificates which will entitle them to a reimportation of a similar quantity free of duty. Germany will not export grain of necessity, but merely as a convenience for certain sections. She will have to import a bushel of grain for every bushel exported, and thus Americans have an opportunity to increase their exports of grain. Furthermore, as the broader application of the certificates may admit some other products and wares free of duty, I can see only an advantage to the United States in this legislation. I may add, however, that no very great expectations should be based upon the working of this law. The quantity of grain ready for export will always be a comparatively small one in Germany, and the number of certificates issued will consequently be limited.

JULIUS MUTH,
Consul.

MAGDEBURG, *April 7, 1894.*

PROSPECTS OF GOLD-MINING IN SOUTH AFRICA.

Last year the German Government sent a mining expert—Herr Schmeisser—to South Africa to investigate and report upon the prospects of gold-mining in the Transvaal Republic. His official report has just been handed in, and it was among the documents referred by the Government to the recently appointed silver commission. The report has also been printed in the Imperial Advertiser (Reichsanzeiger).

In view of the widespread interest in the United States at this time in the world's supply of the precious metals, I have thought it proper to send

the Department a copy of this report, together with a translation of the more important portion of it.

[Translation.]

In the year 1892 there were sixty-nine mines in operation in the Witwatersrand, with a total production of 1,795,630 tons* of conglomerate. Three of the mines produced over 100,000 tons; six from 50,000 to 100,000; forty-one from 10,000 to 50,000, and nineteen under 10,000 tons. The figures for 1893 are not yet at hand, but the production will reach at least 2,000,000 tons.

The ore from the extensive subterranean diggings is carried to crushing mills, in which a part of the free gold is obtained by amalgamation and the auriferous iron pyrites as concentrates are separated, generally by frue vanners, in order to obtain the gold from them, by Plattner's chlorine process. The tailings, consisting of sands and slimes from the stamps, are treated by the McArthur-Forest, or cyanide process. The gold obtained in the different works is divided very unequally among the several processes of extraction. A well-conducted establishment obtains 55 to 60 per cent by amalgamation; the rest is taken from the concentrates, sands, and slimes. At present only 5 per cent is lost.

Furnace coal is at hand in abundance. The Karroo formation, which overlies the eastern and southern arms of the depression, in part contains rich deposits of coal, now already being mined at several places. The Brackpan mine at Böksburg, with a seam about 20 feet thick, turned out 202,745 tons from October 1, 1892, to September 30, 1893. The coal can be transported to the gold mines by railroad.

Coal suitable for forge work lies at a convenient distance in the Middleburg district, on the Olifant River. It exists in thick, horizontal veins, easily accessible, and workable in horizontal headings from the slopes of the valley. Of course, it has to be hauled to the mines at present on ox wagons.

The number of laborers at the Witwatersrand, according to a statistical inquiry undertaken in the summer of 1893 by the Johannesberg Chamber of Mines, may be estimated at about 3,200 whites and about 21,000 colored. * * * Wages are from $3.25 to $3.75 a day for whites and 50 to 75 cents for blacks. A day's work is from eight to twelve hours.

Mining is now generally well conducted; and the financial affairs of the companies, now that the swindling period is past, are in a decidedly healthier state.

The gold output has been as follows:

Year.	Quantity.	
	Kilograms.	*Ounces.*
1888	7,173.9	230,640
1889	11,893.1	382,364
1890	15,318.6	492,492
1891	22,681.9	729,223
1892	37,653.9	1,210,574
1893	46,034.2	*1,480,000
Total (estimated)	140,755.6	4,525,293

*Reports now on hand give the precise amount as 1,478,473 ounces; and for January, 1894, 149,814 ounces.

The value of the above quantities was $20,824,242 in 1892 and probably $25,111,622 in 1893. The average yield per ton of conglomerate in 1892 was 13 pennyweights; in 1893, 14 pennyweights. The gold obtained is still impure, containing a mixture of other metals, and it has, therefore, to be refined before it can be used at the mints or in industries. The mining companies get, therefore, not more than $17.14 per ounce for their gold.†

*Metric tons of 2,200 pounds.

†According to Prof. E. Suess (Die Zukunft des Silvers, p. 46) the yield per ton of conglomerate in 1888 was 22.65 pennyweights; in 1889, 29.60 pennyweights; in 1890, 13.64 pennyweights; and in 1891, 11.93 pennyweights.

The cost of production varies greatly. The average is $6.33 per ton of conglomerate, but, under unfavorable circumstances * * *, $9.50, and even more. In thick, rich reefs, lying horizontally and having few dislocations, the expenses fall as low as $4.75 per ton. At an average cost of $6.33 per ton and at a selling price of $17.14 per ounce, the costs of production can be covered at a gold content of 7.5 pennyweights per ton, which is accordingly regarded as the lowest limit for profitable mining. A few mines, working under specially favorable circumstances, are said to have earned a slight profit on ore containing only 5 pennyweights.

It must be considered, however, that up to the present time most of the mines have turned out disintegrated as well as nondisintegrated conglomerates; and some even work upon the disintegrated from the start. With the decrease in the output of the disintegrated and the increase of the nondisintegrated conglomerates, a certain increase in the cost of production will be unavoidable, owing to difficult work in getting at and digging the ore, and in the crushing and extraction. This increase is estimated at a total of $1 to $1.25 per ton.

On the other hand, a reduction will be effected through a more and more economical method of mining; through a gradual lowering of wages—now surprisingly high, even when we allow for the extraordinary dearness of living; through lower freights on articles used in mining, after the completion of the railroad from Delagoa Bay to Pretoria; and through the reduction of the purchasing price of articles, which, like dynamite, are now kept high by artificial means.

The above-mentioned limit of gold per ton for profitable mining determines the choice of the deposits to be worked. As a rule, only reefs with gold contents above that limit are selected for mining. Thus it happens that in each of the mines on the north side of the Rand only two deposits or lodes are worked—these being either the South Reef, the South Reef Leader, Middle Reef, or the Main Reef Leader. The Main Reef and the North Reef have seldom proved profitable.

From the above it is at once evident that a calculation of the total amount of gold at the Witwatersrand obtainable by mining is impossible. The gold field has not been sufficiently opened up to warrant such a calculation; for example, it has not yet been determined what parts of the field outside the north wing of the Rand will prove profitable in working. We must, for the present, limit our investigation to a well-defined and adequately explored part of the Rand and try to establish the lowest figures for this section.

For this purpose the part of the gold field lying between the eastern limit of the Langlaagte B gold mine and the western limit of the Glencairn mine is best suited. Here are situated the larger mines of the Witwatersrand. In the year 1892 there were taken from the mines in this tract alone 782,889 ounces out of a total of 1,210,574 ounces for the entire Witwatersrand. This tract has a length of 18.5 kilometers (11.5 miles). Making allowance for barren parts of the reef, for intersecting veins of stone and for dislocations, 2.5 kilometers must be subtracted, leaving a profitable working length of 16 kilometers (10 miles).

Now, the question arises, what shall be taken as the greatest possible depth for mining operations? As favorable geological conditions exist at the Rand, no technical difficulties present themselves apart from the increasing heat of the earth at increasing depths. The question is, therefore, to be answered mainly in view of the growing costs of production, necessarily caused by increasing depth. Upon this point, however, no trustworthy statement can yet be ventured, since it is impossible to foresee how the conditions which determine this problem will shape themselves here in the next few decades. The results of mining at other places must, therefore, be brought under comparison.

In coal-mining, experience has proved that work can be continued at a profit to a depth of 800 meters (2,625 feet), and that the work is not too seriously influenced by the increased heat. To exclude all uncertainty, therefore, I have made a calculation, assuming this as the greatest depth; but at the same time I thought that I should examine the results reached by continuing mining to a depth of 1,200 meters (3,937 feet), because a valuable metal, not

subject to unfavorable market conditions, is here under investigation, and because the latter depth has already been actually reached (at Prizbram, in Bohemia).

From three profiles which I made through the mines Simmer and Jack, Village Main Reef, and Crown Reef, the average lateral volume of the lodes was found to be 1,430 meters for a depth of 800 meters and 2,350 meters for a depth of 1,200 meters. Consequently in the above-described tract of 16 kilometers to a perpendicular depth of 800 meters there would be a reef surface of 16,000×1,430=22,880,000 square meters to be worked. At present the average total thickness of lodes worth mining can not be estimated at more than 1.5 meters. Thus the total mass of ore to be removed may be calculated at 22,880,000×1.5= 34,320,000 cubic meters; or, there being 2.7 tons to the cubic meter, 92,664,000 tons of ore.

Now, the gold yield per ton of ore in 1892 was 13 pennyweights, and in 1893 14 pennyweights. Taking the average of 13½ pennyweights, 92,664,000 tons would therefore give a yield of 1,945,944 kilograms of gold (62,548,200 ounces).

As nearly two-thirds of the total yield of the Witwatersrand from 1888 to January 1, 1894, came from the mines in this tract, the above figures must be reduced by 93,000 kilograms, thus leaving 1,852,944 kilograms (59,572,149.6 ounces), of a value of $1,020,828,355, still to be mined.

The average increase of the gold product for the entire Witwatersrand from 1888 to 1893 amounted to 7,772 kilograms (249,870 ounces) per annum. Of this increase, again, we may estimate that two-thirds (5,181 kilograms) was the average increase of the portion of the Rand here under investigation. Supposing now that this average increase continues for ten years, and that thereafter production will continue at the rate then attained—from year to year about the same output—then the exhaustion of the lodes would occur in about twenty-five years from the beginning of 1894.

If mining should reach a perpendicular depth of 1,200 meters (3,937 feet), the supply of gold would be 3,104,880 kilograms (99,821,892 ounces), with a value of $1,710,506,000. At the same rate of increase it would require about forty years to mine this quantity.

At the present rate of increase, assumed in my calculation to continue for the next ten years, the yearly output at that time will be more than twice as great as now. The increase will, of course, not be so regular as I assumed in my calculation for the sake of simplicity. Taking into consideration the numerous preparatory works undertaken in 1893, and the extensive erection of and contracting for additional crushing mills and cyanide equipments, it may be assumed that the increase in production during the next few years will be considerably accelerated as compared with the years just elapsed. As a rule, however, years of very rapid development are followed by years of slower development—years of quiet and steady work and progress. If, however, the output should already be doubled in about five or six years—which I consider altogether possible—the time required for the work will thereby be shortened by a few years. The chief result, however, remains the same, viz, that the mines alone in the tract described, working upon two lodes, will throw upon the markets of the world $1,020,828,000 worth of gold upon reaching a depth of 800 meters, and $1,710,506,000 for a depth of 1,200 meters.

It is worthy of mention that the above results agree in the main with the conclusions reached by the American mining engineer, Mr. Hamilton Smith, now living in London, who was employed by the house of N. M. von Rothschild & Sons to prepare an expert report upon the subject. This report was printed in the London Times of January 17, 1893. Mr. Smith estimated the amount of gold in the above-described tract to a depth of 915 meters (3,000 feet) at £215,000,000 ($1,044,900,000), while I estimated it at £208,000,000 for a depth of 800 meters, and £349,000,000 for a depth of 1,200 meters. The larger results of my estimate are to be attributed partly to a slight difference in the length of tract investigated and partly to the fact that a deep boring made in 1893 south of Simmer and Jack gave such results as to justify me in assuming in my profiles a less rapid dip of the lodes at lower depths.

The fact that the above tract under consideration has a length of only 18.5 kilometers (11½ miles), while the Rand is about 80 kilometers (50 miles) long, warrants the conclusion

that the total results of mining here must considerably exceed the figures as above worked out, even if many of the mines lying outside of this tract should prove to be less profitable than those lying near Johannesberg.

But a reduction of the cost of production will probably hereafter permit the working of even other reefs which are not now considered profitable. From this fact a further increase in production would result. Already the Robinson Gold-Mining Company has decided to begin work this year upon the Main Reef, since it has been shown by the latest investigations to contain gold in paying quantities at lower depths.

The conglomerate reefs at Klerksdorp, about 125 miles southwest of Johannesberg, resemble in their character some of the members of the Witwatersrand group, and are therefore often considered to be western spurs or offshoots of it. At this place, unfortunately, swindling schemes in mining shares begun contemporaneously with the sudden development of the mining industry at the Rand, and the reaction from this speculation has not yet been overcome. In my opinion a considerable mining industry can be developed here when the confidence of the public has been regained, when capital turns in this direction, and when a sound business management has been introduced. Mining here, owing to the more limited extent of the deposits, will, of course, remain far behind that at the Rand. The measure of its development can not yet be estimated.

The gold field at Vryheid, 180 miles southeast of Johannesberg, which I did not personally investigate, is said to be similar in its geological character to that of the Witwatersrand and Klerksdorp. Reports, however, vary greatly as to the value of this field.

It remains to be mentioned that a gold-bearing conglomerate reef was discovered at Havertsburg, in the Zoutpansberg district; also, that similar reefs exist on the Duivel's Kantoor and on the tops of the mountains which inclose the De Kaap district to the south and east. Even though these deposits do not contain more than 4½ pennyweights (about $4 worth) of gold to the ton, still they furnish proof that the appearance of gold in conglomerates in the Transvaal is of extraordinarily wide extent.

In the De Kaap, Little Letaba, Malmani, Marabastad, Houtboschberg, and Selati gold fields the metal occurs principally in quartz veins which take the direction and dip of the mountains, but sometimes running crosswise to the strata of the mountains.

Some of the deposits in the northern part of the Transvaal are to be explained either as oölitic or as lenticular veins, that is, as fissures, which diminish with the trend and dip of the strata for a considerable distance, dwindling finally to a mere fluccan and swelling later to a considerable thickness. Meanwhile, the slight extent of mining here does not yet warrant a final opinion as to these deposits. The gold is found in the veins mostly in bunches, that is, there are accumulations of it here and there along the dip of the strata. The richness of the lode is accordingly considerable in places, but elsewhere it becomes quite unremunerative.

Up to the present time a considerable depth has been reached only in the Sheba mine, near Barbeton, where a perpendicular depth of 380 feet below the outcropping and 165 feet below Figtree Creek has been reached. All other mining enterprises in the De Kaap district are still at work above the level of the valley. The Letaba and the Birthday mines in the Little Letaba gold field have reached depths of 130 and 200 feet. Nearly all the other enterprises here and in the remaining gold fields are, however, scarcely more than experimental works, which have as yet reached no considerable depth.

The development of all these gold fields is hindered by the lack of capital, by the wretched means of transportation, by the lack of coal, and by climatic conditions often very unwholesome. Mining on a large scale is therefore carried on at present only in the Sheba mine, which is operated under specially favorable conditions. From October 1, 1892, to September 30, 1893, there were removed from this mine 33,261 tons of ore, producing 31,806 ounces of gold, or 18.6 pennyweights per ton, at a cost of production of $7.80 per ton.

As soon as the Witwatersrand, with its still great demands for new capital, has been sufficiently provided for; when, further, the railroad lines from Lorenzo Marquez to Pretoria with a branch line to Barketon, and the line from Kamati-Poort to Leysdorp have been com-

pleted; finally, as soon as the establishments already planned and in process of building for transforming the water power of several rather large streams into electric power, to supply the lack of coal, have gone into successful operation, then vein-mining will also undoubtedly show a rapid development. This form of mining may then contribute for an indefinite period, and in no inconsiderable measure to the increase of gold production in the Transvaal. This is also true of the rather unimportant laterite and alluvial deposits.

Since the above report was written the returns for January and February, 1894, have been received. The output in January was 149,814 ounces; in February, 151,087 ounces; total, 300,901 ounces, or an average daily rate of production of 5,100 ounces, against a daily rate of 4,050 ounces for the year 1893—an increase of 25.7 per cent.

The latest information from the Transvaal is that by August, 1894, the production of gold will reach 200,000 ounces per month.

WM. C. DREHER,
Consular Agent.

GUBEN, *March 16, 1894.*

GOLD FIELDS OF SOUTH AFRICA.

In reply to the Department's request for a full statement as to the gold yield in the South African Republic for certain years, an estimate as to its fineness, and such facts as I could gather in regard to all the gold fields of South Africa, I beg leave to submit the following.

Acting Consular Agent Charles Williams, at Johannesberg, has furnished me with a very full report, which I reproduce entire, and add such other facts as I have gathered.

Under date of March 13, Mr. Williams writes:

The production for 1893 has continued to be progressive, and shows a considerable advance on that of the preceding year. Since the opening of the Witwatersrand district fields the production has amounted to 4,556,235 ounces 12 pennyweights, as follows:

	Oz.	Dwts.
1887	23,125	8
1888	208,121	14
1889	*369,557	5
	42,000	0
1890	494,817	0
1891	729,268	6
1892	1,210,868	16
1893	1,478,477	3
Total, Witwatersrand district	4,556,235	12
All other districts	500,000	0
Grand total	5,056,235	12

* Estimated production in 1887, 1888, and 1889, of which no detailed record is now obtainable.

The increase of 267,601 ounces 7 pennyweights on the output of 1892 in the Witwatersrand district is due to the general development of the industry. The chief advance was obtained from the greater amount of tailings treated. The returns of tonnage of tailings, though detailed by most companies, are not complete, owing to a great extent to there being several small tailing syndicates which do not furnish particulars of their operations. A careful estimate, however, shows that 1,217,792 tons were dealt with during the year, or only 1,000,000 tons less than passed through the mills. The increase of output under this head was 144,329 ounces 17 pennyweights.

Milling returns gave an increase of 83,091 ounces 11 pennyweights. The number of stamps worked during the several months has varied considerably, but the average running daily only exceeded that of 1892 by 48, the figures being—average number of stamps per day running during 1892, 1,907; in 1893, 1,955. Owing, however, to stamps of heavier weight in many cases having been substituted for the lighter ones previously in use, the service per stamp was increased from 3.21 tons per day in 1892 to 3.65 tons in 1893; and an increase of tonnage treated of 282,444.

The return per ton from the mill shows a slight decrease. This is due to most of the companies having reached the level of the pyritic rock. The actual total return from mill and tailings is, however, more than a pennyweight higher than that of 1892.

Gold returned to the bank yielded 17,772 ounces 15 pennyweights more than in 1892. Under this head is comprised gold obtained by companies and syndicates working in the district, but not making regular returns.

As details are wanting, it is not possible to determine the relative amounts yielded by ore treated at the mills and tailings dealt with under this head; but a considerable proportion was undoubtedly obtained by milling operations.

The following is the summary of increase during 1893:

	Oz.	Dwts.
Mill	83,091	11
Tailings	144,329	11
Concentrates	22,378	17
Alluvial	35	13
From bank	17,772	15
Total	267,608	7

The gold output of other districts of the Transvaal also shows an increase. The greatest progress has been made in the Klerksdorp and Potchefstroom districts; but Lydenburg and De Kaap have also advanced. Zoutpansberg, the chief producing center of which is Klein Letaba, which gives three-fourths of the whole of the gold output of the district, shows a decrease of nearly 40 per cent on the results of 1892. The last quarter of the year, however, shows a marked improvement on the previous ones. Malmani also shows a decrease of 15 per cent.

The total output of gold in the Transvaal during 1893 was 1,610,335 ounces 18 pennyweights, as follows:

			Oz.	Dwts.
Witwatersrand			1,478,477	3
De Kaap			67,497	7
Lydenburg			29,329	0
Klerksdorp and Potchefstroom			24,407	0
Klein Letaba	6,587	17		
Selate, etc.	2,295	13		
			8,884	10
Malmani			1,719	8
Vryheid			21	10
Total			1,610,335	18

There were exported from the Witwatersrand by the different banks 1,437,607.9 ounces of native gold in 1893.

The exports of raw gold from South Africa (Cape Colony and Natal) for 1893 amounted to 1,551,844 ounces, valued at £5,472,997. Thus the average price on all gold exported during the year 1893 was £3 10*s.* 6.4*d.* per ounce, and the bank assayers here compute the fineness at this price to be 830. This average of £3 10*s.* 6.4*d.*, however, represents a liberal range of valuation, the general average value of the cyanide product being about £3 per ounce, while the general average value of the mill and concentrates gold is about £3 13*s.* 11*d.*

The stamping capacity of these fields is being continually increased. There are about 250 stamps now in course of erection that will be started within the next three months.

A proof that a constant increase may be expected in the output is given by the returns of January and February, 1894—the Witwatersrand producing for those months 149,814 ounces and 151,857 ounces, respectively; and it is believed that 200,000 ounces per month will be reached before the end of this year.

A large yield will also be derived later from the "deep levels," which have thus far only been started, but sufficient work has been done to prove the existence of a very rich deposit that probably will not reach the limit of its yield for four or five years.

The maximum of production for these fields is believed to be about 300,000 ounces per month. While the opinions of experts vary on this point, the figure named represents about an average of the opinions given.

Regarding Mashonaland and Matabeleland, it is clearly proven that these countries are very rich in gold; but there has not been a time since the whites have had free access to the country for sufficient work to give any returns in product. The largest operators of this country, however, are now arranging for the development of those fields.

In order to gain still further light on the question of the fineness of Witwatersrand gold, I applied to the Standard Bank of South Africa, which has a large branch at Johannesberg, and which claims to purchase nearly one-half of the gold output of these fields. Their reply was as follows:

With reference to the information which you verbally solicited as to the average fineness of the gold produced on the Witwatersrand fields, our Johannesberg branch supplies us with the following figures, based upon their purchases of gold for the six months ending December 31 last, and which they consider reflects a very fair average of the fineness of Witwatersrand gold generally, viz, 38,583 ounces mill gold, 861 per cent; 13,238 ounces cyanide gold, 719.5 per cent; average, 825.5 per cent. The London value at 825.5 per cent would be £3 10*s.* 1½*d.*

The difference of the estimate in fineness between Mr. Williams and the bank may be accounted for by reason of the large quantity of cyanide gold purchased by the bank and included in their estimate.

While it is yet too early to obtain statistics as to Mashonaland and Matabeleland, there is no possible doubt the entire country as far north as the Zambesi River is very rich in gold, both alluvial and quartz reef. Some American prospectors, who have passed a long time in the extreme north, tell me that from Beira (on the east coast) inland to Salisbury at least and for a long distance north there are unmistakable indications of extensive mining having been done centuries ago, and some old reefs have been worked to water level by open work. In other places old shafts are still to be seen.

The Manica country, nearer the coast, also seems to be rich in gold. A railroad is now being built from Beira to Salisbury, a distance of 350 miles, 75 miles of which have been completed. Buluwayo, the capital of the late

Matabele King, is about 150 miles southwest of Salisbury. It is generally believed that the Portuguese formerly obtained large quantities of gold north of the Zambesi River, which is about 2,000 miles north of this place. The best-informed scientists claim that Beira is the Ophir of the Bible.

Sir John Willoughby telegraphed from Buluwayo on March 17 that 4,042 mining claims had been registered up to that date, that excessively rich specimens were being continually sent in from every direction, and that none of the numerous pannings had given a prospect of less than 2 ounces.

The late newspapers here report the finding of rich alluvial deposits in Mashonaland, near Victoria. I inclose a clipping from the Cape Times, of this place, of March 8. A great many citizens of the United States are going into these fields. Every steamer brings a number of them to this port.

As to gold in Cape Colony and Natal, I have not been able to discover that it exists in quantities large enough to cut any figure in the gold markets. Small discoveries have been made, and some gold obtained, but not much.

Damaraland, a German possession on the west coast, is probably rich in gold, but has scarcely yet been opened. Gold has been found near the coast, and indications are that the country will prove as rich as those further inland.

In conclusion, I have no doubt that the opening of the railroad from Beira to Salisbury, the destruction of the Matabele power, and the influx of determined and experienced miners, now beginning to take place from our own country and from Australia, will, in a short time, very largely increase the gold output.

C. H. BENEDICT,
Consul.

CAPE TOWN, *April 11, 1894.*

GOLD FIELDS OF MATABELELAND.

[From the Cape Times, March 8, 1894.]

Several prospectors and miners have passed through here on their way to the Gwailo River and to the reported alluvial gold field at the head waters of the Lunde. All the experts here declare that in no country they know of is there so much visible gold as in the surface quartz of Matabeleland. The prospectors are bringing in specimens from all parts, which not only betray their glittering wealth to the eye, but also pan out well. Surface indications are very promising, but we do not know yet what lies hidden below. None of the ancient workings here are deep, as in Mashonaland, but merely superficial, while there are so few mining tools at present in the country that sinking has only commenced at five shafts. The bonus mining rights, of twenty claims each, granted to all men who served in the expedition are being readily bought by outsiders at £8 apiece, while some have brought £15 or more. There are not wanting signs to show that there will be a considerable rush of gold-seekers into Matabeleland when the country is open to the world toward the end of April. Members of the expedition are selling their bonus farm rights (3,000 morgen) at an average price of £70, which appears far below their value, so syndicates are availing themselves of the opportunity. But, though land is cheap, everything else is extravagantly dear up here. Almost famine prices are still charged at Buluwayo for all necessaries, and these

prices are likely to be maintained so long as the rains continue. For two summers past the rainfall has been very insufficient here. Had the rain failed again this summer, there would probably have been a famine in the land. But now there is small fear of that calamity, for more rain has already fallen than is required to fill all the fountains of the rivers, and there is no prospect yet of an improvement in the weather.

RHINE VINTAGE OF 1893.

Referring to my report of October 20, 1893,* on the Rhine vintage of 1893, I have now to say that the new wine has sufficiently developed to allow pretty accurate estimates of its quality to be made, and that the general opinion formed with respect to it seems to be that it will be, in general, a wine about like that of 1886, ranking a little below the wine of that year in quality. Wines, however, from selected grapes, cabinet wines from the Government vineyards, and wines from particularly well-favored situations will excel those of 1886, and take rank among the best of the century.

The must weights obtained last fall in the choicest vineyards were remarkably high—the highest on record; and the wines from them will compare favorably with those of any year of the century. A must weight of 100° Oechsle, equal to about 20 per cent of sugar, has always been considered a high weight for unsorted grapes, and 130° to 140° for selected ones; but in 1893 the astounding weights of 129.6° Oechsle for unsorted grapes and 210° for selected ones were obtained in the domanial vineyards of Marcobrunn and Steinberg. Of such an achievement ever having been met with before there is no remembrance or record, and as up to the year 1834 there was no sorting out, or "Auslesen," as it is termed here, of the ripest grapes from the great mass harvested, such results were probably never before realized. In the celebrated year 1868, which is noted for its superb wine, 130° to 150° Oechsle were the highest must weights obtained from selected grapes in the Steinberg vineyard; and it was supposed then that those figures would never be exceeded, but those for 1893 have overstepped them amazingly.

The lowest must weight in the better class of vineyards in the Rhinegau last year was reckoned at 84° Oechsle. At Ruedesheim the ordinary must weights ran from 92° to 108° Oechsle; in the Ruedesheimer Berg, selected grapes gave 172°; at Hatlenheim, unsorted grapes gave 90° to 122° Oechsle; selected grapes in the Marcobrunn vineyard, 140° to 210° Oechsle; selected grapes in the Graefenberg vineyard gave 180°; at Hochheim, on the Main, 90° to 107° Oechsle was obtained from unsorted grapes, and 164° to 192° from selected grapes. In the famous Steinberg Crown vineyard, 92° to 122° was what the must weights showed for unselected grapes, and for selected ones, 125° to 210°.

When I made my report in October, 1893, the highest must weight which had been reported was 150° Oechsle.

The acidity amounted at Assmannshausen, in the case of red Burgundy grapes, to 6.3 per cent; in the case of Traminer (a white grape), to 4.5 per

*No. 159, p. 442.

cent; and in the case of Riesling (a white variety, which is the grape mostly cultivated in the Rhinegau), from 6 to 7.5 per cent. Only at Ruedesheim did these grapes reach in part 9.1 per cent of acidity.

The must weights obtained will make the wine of 1893 renowned. The summer was hot and abnormally dry for Germany, which caused an unusual amount of sugar to form in the grapes. Had there been a little more moisture in the air the grapes would have done much better, the crop would have been larger, and the product juicier. As it is, the bulk of the wine of 1893 will be a little fiery and not as delicate in flavor as it would have been had a little more rain fallen. What are known as "cabinet" wines will be the best in thirty years.

The wine of 1886 was the best since 1868.

In quantity the crop was from one-fourth to one-half a vintage in the Rhinegau and about two-thirds of a vintage in Rhine-Hesse; but the latter never ranks in quality with that of the Rhinegau.

JAMES H. SMITH,
Commercial Agent.

MAYENCE, *March 6, 1894.*

RHINEGAU VINTAGES FOR TEN YEARS.

The following table shows the average quantity and the quality of wine produced in the Rhinegau during the last ten years:

Year.	Yield per hectare.*	Vintage.	Quality.
	Gallons.		
1884	739½	Three-fourths	Very good.
1885	293½	Less than one-third	Fair.
1886	354½	More than one-third	Excellent.
1887	510½	More than one-half	Fair.
1888	598½	Three-fifths	Medium.
1889	576½	Over one-half	Very good.
1890	686½	Over two-thirds	Good.
1891	143½	One-seventh	Medium.
1892	319 1/10	One-third	Good.
1893	499½	One-half	Excellent.

*1 hectare=2½ acres.

The average quantity of wine per hectare, during the last few years, has been 472 gallons, or between one-third and one-half of a full vintage.

The last full or standard vintage in quantity was in 1875, when 1,005¾ gallons of wine were obtained, on an average, per hectare, from 2,197.56 hectares (5,494 acres) of vineyard, or a total of 2,210,191 gallons—about 402⅓ gallons per acre. The product of 1875 has been taken as the basis for the present exhibit. In quality, however, the wine of 1875 was only a medium article.

JAMES H. SMITH,
Commercial Agent.

MAYENCE, *April 13, 1894.*

RAILWAYS IN SIAM.

After surveys had been made and plans and specifications completed, bids were invited by advertisement in 1891 for the construction and equipment of a royal railway, to extend from Bangkok to Korat, in the northern part of the Kingdom, a distance of 140 miles.

Several American contractors wrote to this consulate-general requesting that these plans and specifications be furnished them, so that they might consider intelligently the question of bidding for the work. They said that if they found the plans, etc., to be what they expected they would send out some one to go over the route and make a report upon the same. After receiving the plans and specifications, however, they replied that it was impossible to consider the proposition further, inasmuch as, in their opinion, no one could construct the road unless he had some particular kind of old iron and other obsolete stock which he could work off on such a contract, and that the whole thing was absurd from start to finish. This, of course, removed American competition from the field.

Some two or three bids were put in at the required time, and in January, 1892, the contract was let to an English company, they being the lowest bidders, for 9,000,000 ticals (about $3,000,000 in gold). This was to include, according to plans, etc., the completion and equipment of the line with rolling stock, stations, freight, and passenger accommodation, telegraph lines, etc.—in fact, everything that goes to make a complete railway. Five years was the time specified in which it should be completed.

As soon as the preliminary arrangements could be made the work was inaugurated with great ceremony—the King turning the first sod before a concourse of 10,000 people. This work has been going on for about two years, and it is estimated that one-third of the road, taken as a whole, is now completed.

In this connection I may mention some of the many difficulties with which railroad building in Siam is attended. To begin with, there seems to be a general want of confidence between the employers and employés, each seriously questioning the stability of the other. Then, the question of labor is a difficult one, as coolies have to be imported from China at great expense, and it is an open question after their arrival here as to their going on with the work for which they were imported. As the demand for such labor in this city is considerable and the wages are higher than those which they would get from the railroad, they not infrequently leave their importers in the lurch and go to work in the city. They are imported under contract, and the above proceedings are prevented in most cases, but they frequently make their escape, and, as they are all so much alike in general appearance, it is almost impossible to identify the fugitives among the vast throngs of their countrymen in the city. Consequently, having once escaped, they are usually given up as lost.

Again, the actual work of constructing a roadbed is very different from that which we are used to in the United States. The coolies use hoes instead of picks and shovels, and baskets instead of horses and scrapers. Transportation is another trouble of considerable moment. All supplies have to be delivered in boats, by river and canal, and, as these have to depend upon the tides, they are frequently left high and dry.

The inability or the unwillingness of the laboring classes to push matters is also discouraging. There seems to be nothing gained in trying to hurry them along, as they are sure to take their time with everything.

Malaria and other diseases are also serious obstacles to those who are stationed in the interior. The country through which the road runs is flat and swampy, with the exception of about 15 miles of really heavy rock work, where the road strikes the hills. Here cuts ranging from 16 to 65 feet in depth have to be made.

This road pierces some of the finest rice-producing territory in Asia, to which it will be of great benefit in bringing the product to the markets, a process which is now carried on in rowboats by river and canal.

Another object of the road, and probably the principal one, is the development of the country beyond the hills of Korat, which is now practically in a wild state. Its soil is said to be capable of producing as much as any other part of Siam. It is reported that the Government intends to extend the road some distance beyond Korat, its present terminus. This, of course, if done, will be of great benefit to the country through which the road will run.

There is one other railway in Siam, which was completed and opened early in 1893. It runs from Bangkok to Paknam, at the mouth of the River Menam, a distance of 25 miles. It is of one-meter gauge (39.37 inches) and depends principally for its support on the traffic between the two terminals. It was built by private capital, and is considered a success, being already able to pay dividends of 5 per cent.

ROBERT M. BOYD,
Vice-Consul-General.

BANGKOK, *February 21, 1894.*

THE PORT OF FIUME.*

Fiume, the principal seaport of the Hungarian Kingdom, is situated on the north side of the Quarnero Gulf, latitude 45° 44′. It has at present a population of 32,000, and, thanks to its natural advantages and the efforts made by the Hungarian Government, is rapidly growing in importance. Goods are exported via Fiume from Hungary, Croatia, and Slavonia to France, England, Holland, Belgium, the United States, Brazil, and all the more important ports of the Mediterranean.

*The consul-general says that these facts concerning the port of Fiume were furnished him by Mr. Gelletich, the consular agent at Fiume.

The articles most largely exported are timber, flour, grain, barley, beans, rape seed, dried prunes, oak extract, raw sugar, and alcohol.

The principal imports are raw petroleum, rice, coals, wine, tobacco, coffee, oranges, lemons, pig iron, and jute.

In the year 1893 the number of vessels that entered and left Fiume was 13,543, of which 5,711 were sailing vessels and 7,832 were steamers. The shipping, as respects the United States, was as follows: Arrivals, 6 steamers, with a tonnage of 8,039, and 5 sailing vessels, with a tonnage of 3,274; departures, 22 steamers, with a tonnage of 41,947.

The value of the exports shipped from Fiume during the year 1892 was $20,478,008, while the value of the imports was $16,619,915. The exports were about $3,000,000 less in 1892 than in 1891, but this was probably due to the fact that at the close of 1891 Fiume ceased to be a free port.

Business was better during the first part of 1893 than of 1892, the increase in the import of Italian wines being especially noticeable. This increase was caused by the lowering of Italy's import duty and was effected by a commercial treaty between Austria and Italy.

The harbor works of Fiume were commenced in the year 1873, and at the end of 1883 the total length of breakwater completed was 1,319 meters. The Hungarian Government has done everything in its power to make Fiume the outlet for Hungarian commerce on the Adriatic. It has constructed railways, breakwaters, piers, warehouses, etc., and has decided on a further expenditure of $5,600,000.

The docks are connected with the railroad by special tracks. There is an excellent dry dock where vessels of 2,000 tons can be repaired, and the port is well equipped with all the conveniences, such as buoys, tugs, electric lights, etc.

Formerly nearly the entire export and import trade of Austria-Hungary passed through Trieste, but during the last twenty years Fiume has gradually gained the larger part of the Hungarian trade, and will, in the near future, be the leading port of entry in this Empire.

MAX JUDD,
Consul-General.

VIENNA, *March 10, 1894.*

GERMAN EXPORTS IN 1893.

The following statement shows an increase in the exports of Germany for 1893 as compared with those of 1892. This is in marked contrast with the exports of Great Britian and France, which fell below those of 1892. The German gains, in most cases, were small, although in iron, chemicals, leathers, and woolens, they were large enough at least to be satisfactory. The difference in prices between 1893 and 1892 may make the results of the trade of 1893 less favorable in some particulars than those of the preceding year, but the fact remains that the export trade has more than held its own.

Exports of Germany in 1893 and 1892.

Articles.	1893.	1892.
	Marks.	*Marks.*
Cotton and cotton goods	197,700,000	201,400,000
Linen (yarn and goods)	31,300,000	32,400,000
Silk and silk goods	182,000,000	180,400,000
Wool and woolen goods	333,400,000	318,000,000
Clothes and underclothes	95,500,000	98,200,000
Coal and coke	142,700,000	131,200,000
Iron and ironware	263,200,000	234,400,000
Copper and copper wares	68,300,000	56,200,000
Zinc and zinc wares	37,800,000	32,900,000
Instruments, machines, etc	121,900,000	119,700,000
Drugs, dyes, and colors	277,600,000	262,000,000
Glass and glassware	43,600,000	37,800,000
Hardware	78,300,000	75,900,000
Leather and leather goods	147,800,000	140,400,000
Books, pictures, objects of art, etc	99,500,000	92,200,000
Groceries, meals, grains, etc	345,000,000	297,900,000
Paper and paper wares	95,800,000	94,600,000
Crockery, etc	37,800,000	35,200,000
Miscellaneous	525,400,000	513,300,000
Total	3,124,600,000	2,954,100,000
Total in dollars	$743,654,800	$703,075,800

J. C. MONAGHAN,
Consul.

CHEMNITZ, *March 14, 1894.*

TOBACCO IN SPAIN.

La Compañia Arrendaturia de Tabacos has the monopoly of manufacturing and selling tobacco in Spain. It has factories in Alicante, Bilbao, Cadiz, Corunna, Gijon, Logroño, Madrid, San Sebastian, Santander, Seville, and Valencia, eleven in all. It employs 27,799 girls, the factory at Seville employing the largest number (5,628), and the factory at Logroño the smallest (196). It maintains 18,519 cigar stores, and it is estimated that 50,000 families are supported by this trade alone. During the fiscal year ending June 30, 1893, the total sales of tobacco in its various forms amounted to $32,000,000. Of the forty-nine provinces of Spain, Barcelona consumes the most tobacco, spending therefor $3,000,000; then comes Madrid, with $2,500,000, and next Valencia and Seville, with about $1,750,000. The largest sales occur during December and the smallest during February. Habana cigars are quite as expensive in Spain as in the United States, but all other kinds are somewhat cheaper.

HERBERT W. BOWEN,
Consul.

BARCELONA, *February 1, 1894.*

ARTIFICIAL FRUIT SUGAR.

Among the recent chemical discoveries in Germany which would seem to possess a practical interest for those portions of the United States where the preservation of fruits has become an established industry, is a process by which fruit sugar may be manufactured from beet juice, as an improved product specially adapted to certain purposes.

The inventor is Dr. O. Follenius, director of the beet-sugar factories at Hamburg and at Hattersheim, near Frankfort. His invention has been patented in Germany (No. 35,487) and in some other European countries, but not, thus far, in the United States. The process consists, apparently, in the inversion of beet sugar at a certain stage of its manufacture by chemical treatment into what is technically designated "Lävulose" ($C_6H_{12}O_6$), which is chemically identical with the natural fruit sugar developed, in greater or less degree, in most kinds of fruit—1.57 per cent in peaches, 6.26 per cent in plums, 10.79 per cent in sweet cherries, and as high as 15 per cent in some varieties of grapes. Fruit sugar differs, both in taste and chemical composition, from cane sugar, which latter belongs to the second group of saccharine substances, having the formula $C_{12}H_{22}O_{11}$.

The artificial fruit sugar manufactured by the Follenius process is a limpid white sirup of great density, containing from 75 to 76 per cent of sugar, and possessing among other valuable qualities a rich, fruity flavor, as of natural fruit sugar, and the capacity to remain fluid and free from granulation for an indefinite period, notwithstanding its high degree of density. It is well known that ordinary white sirup containing 65 per cent or more of sugar crystallizes and forms granular deposits, and when used for preserving fruits often "candies" to such a degree that the preserves have to be recooked to restore the desired smoothness and fluidity. The new artificial fruit sugar, on the contrary, remains smooth and fluid under all conditions.

But the quality which chiefly determines its commercial value is its power to assimilate, develop, and preserve the natural aromatic flavor of the fruit to which it is applied as a preserving material. Confectioners, fruit-packers, and skilled housekeepers who have tested it quite extensively during the past year in the preservation of cherries, strawberries, peaches, and various other fruits, pronounce it far superior for such purposes to any other known form of sugar, and cite among its other advantages the fact that it is always ready for use, and eliminates wholly from the factory all incidental processes of dissolving and refining the sirup. Finally, it corrects the tendency, so common in fruits preserved in ordinary sugar, to soften and assume a crude, sugary flavor, which not only injures the color and appearance of the preserves, but renders them cloying and disagreeable to the taste.

Although of recent invention, it is largely used in this country for perfecting wines, as well as in the manufacture of fine liqueurs, and is far superior

to ordinary sugar for making lemonade or any preparation in which the saccharine principle is brought into contact with the acid juices of fruits. So far as is known, its use has not been extended, even experimentally, to the United States. It is made only at the sugar factory in Hamburg, where it is sold to the trade for $7.14 per 100 kilograms, which would be equivalent to 3¼ cents per American pound. As the manufacture of beet sugar is assuming important proportions in the United States, and the conservation of fruits in the forms of jams, jellies, and preserves of various kinds is already established in Maryland, California, and several other States, the field would seem to be open and ready for a trial of what is here considered a highly practical and important improvement. The first step should be, naturally, to ascertain by actual trial whether the new material possesses all the merits that are claimed for it.

Any trustworthy American firm or person who is inclined to make the experiment can obtain, by addressing this consulate, free of cost, except for transportation, a sample of artificial fruit sugar for the purposes of trial. Should such test prove successful, the necessary facilities for obtaining a regular supply, or for establishing its manufacture in some beet-growing district of our country, could be readily arranged.

FRANK H. MASON,
Consul-General.

FRANKFORT, *March 13, 1894.*

ENGLAND'S DEMAND FOR STRAW HATS.

During the summer of 1893 England experienced what might properly be termed a straw-hat famine. The summer and autumn were the hottest and dryest in many years, and cool and light head gear was in especial demand. In fact, the demand was so much greater than the supply that for six weeks straw hats were not to be obtained at any price. My own order for a hat of this character given to a London firm late in May was not filled until July. In the town of Bradford, one firm of hatters lost over one thousand orders. Another hatter lost three hundred orders in a single day. The manufacturers were wholly unable to supply the wants of the public. The single city of Bradford would have taken and utilized an entire shipload of straw hats at any time during last June or July. If some enterprising American exporter could have grasped the situation and sent over several shipments during the heated term, he would have run no risk whatever. He could have sold out instantly and at a handsome profit. This season (1894) is starting off much like the last. Mild, pleasant weather is the rule, and straw hats were being worn in the last days of March. At this writing, they are quite common. It is prophesied that the summer and autumn are to be warm and dry again. The American manufacturers and exporters of hats would, in my opinion, do well to keep posted on English requirements in this line and would please the people here and make money for themselves

by supplying the market if last summer's conditions are duplicated. I am told that the English straw-hat factories are now working overtime to furnish the stock desired, and are not confident of doing it.

It should be noted that the English straw hat is not so stylish nor so light in weight as the American hat. The one I purchased is as heavy as the ordinary winter Derby. The American hats would have the advantage of those on the market here now, being light, handsome, and durable. The English hats are, in addition, weighted down with some kind of heavy glue or paste that is used for stiffening. If the wearer is caught in a shower, his hat becomes sticky, and is likely to get out of shape.

The popular hats here this season are the "Brazil Boaters." They are of rough and fine plaited straw, with plain black, red, navy blue, and white or white and blue bands.

The following are the retail prices of boys' and men's straw hats in Bradford, viz, 50, 62½, and 72 cents, $1.12, $1.25, $2.12, and some fine Panamas running up to $4, $5, $6, and $8. Swiss straws are sold at half a crown, or about 60 cents, but are not recommended for shapeliness or durability. Another Swiss importation, called the "Rustic," sells for about 85 cents.

The majority of straw hats sold to the average class of customers command about $1 at retail. The wholesale price of these hats varies from $3.12 to $15 per dozen.

CLAUDE MEEKER,
Consul.

BRADFORD, *April 18, 1894.*

AMERICAN SAMPLES IN SPAIN.

The methods employed by American exporters to bring their goods to the notice of foreign buyers do not seem to be as effective as they might be. I therefore make the following suggestions, which, if put into practice, will, I believe, produce excellent results in Spain, and, doubtless, in other countries.

My plan is to induce a first-class firm in each of the principal commercial centers in foreign countries to establish a permanent exhibition of samples of American goods and to act as agents to secure orders for our exhibitors. The details of the plan and the readiness with which it has been accepted by a firm of this city may be gathered from the following letter addressed to a member of said firm and from his answer thereto:

CONSUL BOWEN TO MR. ALBERT MUSTON.

APRIL *11, 1894.*

SIR: Having learned that you have formed a partnership with a gentleman of good standing to do business as commission agents, I should be pleased if you would kindly inform me whether your new firm will agree to receive and exhibit samples of American goods, and to

take orders for the American houses that send said samples, provided you are paid for every invoice of such samples the sum of $10, which sum shall be considered as payment in full to your firm for conveying said samples from the custom-house of Barcelona to your warerooms; for keeping them insured for the period of a year; for exhibiting them, and for returning them to the custom-house of Barcelona at the end of one year to be shipped back to the United States, in case you are ordered to so return them by their American owners, with the understanding that all the Barcelona custom-house expenses, as well as those of shipping said samples from and to the United States, shall be paid by said American houses; and with the further understanding that, in case the said samples are bulky, your firm will receive as much greater a sum than said $10 as may be fair and reasonable and determined by the joint consent of your firm and the American houses owning said bulky samples.

Such an agreement would be profitable to your firm, as it would tend to secure for you much remunerative business, and it would also be advantageous to American exporters, inasmuch as they would have a good opportunity to exhibit their samples and build up an extensive business with this, the commercial and distributing center of Spain. You who have lived here many years are perfectly familiar with the language of the people, have represented many foreign houses here, and are thoroughly acquainted with the custom-house and with the local and national business methods, know better than I do that business here can not take care of itself, and that articles imported here need to be exhibited, recommended, and pushed with infinite patience and energy, and that foreign houses frequently suffer great losses here from such fictitious claims as those that their goods have been injured *in transitu*, and that the person to whom they were sold has failed and can pay nothing or only a small percentage of their price.

You will, therefore, comprehend at once my idea, which, in a word, is to have established here a permanent place for the exhibition of samples of all kinds of American goods, so that Spanish buyers may become perfectly familiar with their merits, and American exporters may feel that their samples will be not only honestly handled and cared for, but will have all the necessary chances for entering into competition with the samples of other foreign countries.

In case your firm desires to thus maintain a permanent exhibition of American samples and secure orders for the exhibitors under the conditions and for the purposes named, please answer this by letter, and I will forward copies of our correspondence to the Department of State for publication.

You understand, of course, that I do not offer to place your firm under the patronage of this consulate nor under the official patronage of the United States, but that I am only seeking to establish business relations between your firm and American exporters for the purposes herein set forth.

I am, etc.,

HERBERT W. BOWEN,
U. S. Consul.

MR. MUSTON TO CONSUL BOWEN.

15 RONDA DE LA UNIVERSIDAD,
Barcelona, April 14, 1894.

Hon. HERBERT W. BOWEN,
U. S. Consul, Barcelona.

SIR: I have read very carefully your letter dated April 11, 1894, in which you suggest that the firm of which I am a member (Roura & Muston) shall establish a permanent exhibition of samples of American goods and act as exhibitors and guardians of said samples and as agents for the American houses that send us said samples. I have discussed the matter at length with my partner, and we are ready, willing, and anxious to adopt your suggestion under the conditions and for the purposes mentioned in your letter. We shall, therefore, be pleased to have as much publicity as possible given in the United States to this enterprise, and if it proves successful, we shall see that this permanent exhibition is advertised throughout

all Spain, and we shall do everything in our power to make Spain a valuable market for American goods. Samples may be sent to us on and after the 1st of May, 1894, addressed to "Roura & Muston, Ronda de la Universidad, No. 15, Barcelona, Spain," together with drafts drawn to our order on the Crédit Lyonnais of Barcelona for $10. As references we give the Crédit Lyonnais, Barcelona branch, and the Banco de Barcelona.

I may add that our firm understand clearly that we are not under the patronage of either you or of your Government, and that the entire enterprise is simply of a business nature, and dependent upon the exclusive relationship entered into between American houses and our firm.

Please accept our best thanks, and believe me to be,

Yours very truly,

ALBERT MUSTON.

This method would put an end to the frauds that are perpetrated on American exporters; would render expensive transatlantic trips to select foreign agents unnecessary; would give exporters the opportunity to produce an individual, as well as a combined, impression upon foreign buyers; would save them much trouble, annoyance, and outlay in advertising; and would create a resort that would be regarded far and wide as an interesting and instructive modern museum.

HERBERT W. BOWEN,
*Consul.**

BARCELONA, *April 14, 1894.*

PEANUT MEAL IN GERMANY.†

Through the courtesy of Ambassador Runyon, I have secured an official report from the Foreign Office here, dated April 14, 1894, showing the result of the experiments made by the German Government authorities with regard to the use of peanut meal for food in the German army and navy. By reference to the following translation of the report, it will be observed that the experiments did not result in the adoption of this kind of food for army or navy use:

The undersigned hastens to inform his excellency, the duly accredited ambassador of the United States, Mr. Theodore Runyon, in reply to his communication of February 27, 1894 (F. O., 56), that peanut flour as food for the troops or as fodder for the horses is not used in the German army. Since 1892 experiments have been made in various directions with peanut flour, also with dried and roasted peanut grits; but the experiments did not result in the adoption of this kind of food for army use.

During the experimental utilization of this food no immediate health-injuring symptoms were noticed; the troops did, however, show an unconquerable dislike to the food prepared from peanut flour or grits. Its frequent use can not be considered as healthful or nourishing;

*Consul Bowen's letter is published in the CONSULAR REPORTS for the information of American merchants and manufacturers. The Department of State can give no official indorsement to a private enterprise, nor does it assume responsibility of any kind in connection therewith.

†For previous report of Consul-General Mason, of Frankfort, on this subject, see CONSULAR REPORTS No. 163 (April, 1894), p. 683.

consequently the use has been discontinued, and for the same reason no further experiments will be made.

Samples of peanut food articles, from the factory of Rademan, at Bockenheim, have been given a trial in the imperial navy. After an examination as to their merits as a diet for invalids, they were found not suitable. The use of peanut flour or grits has, therefore, not been sanctioned in the imperial navy.

W. H. EDWARDS,
Consul-General.

BERLIN, *April 19, 1894.*

EIGHT-HOUR SYSTEM IN ENGLAND.

What is popularly known as "the eight-hour movement," or, more specifically, the movement to make eight hours a legal day's work, is once more attracting attention in England. Renewed prominence is given it by the reports of trials accorded the system by prominent manufacturers and the publication of results in the press. Though attempted legislation in this direction has been several times defeated, the fight is to be renewed, and the eight-hour bill, it is said, will soon be before Parliament. I am informed that the Navy and War departments are making the experiment of working their laborers and artisans eight hours per day, and that other branches of the Government service will soon try it. Should it prove the success it appears to be under private trial, there is reason to suppose it will be approved by the Government, if it again comes forward as a proposed law. It is receiving the attention of the local governing bodies throughout the country, and is fast achieving general popularity. In Bradford, a majority of the corporation employés, including the police, are on duty but eight hours per day.

One of the most important tests of the eight-hour plan has been made by the Salford Iron Works, located near Manchester. William Mather, M. P., the senior partner in this firm, has recently made a report on a year's experience in working the employés forty-eight hours per week. The report is addressed generally to employers and workmen in the engineering and machine-making trades, and was given to the public March 26 last. In a brief introduction, Mr. Mather states that his object in making known the results of a trial year in working on the eight-hour system, unsolicited either by employés or trades unions and at the firm's own risk, was to prove how far the widespread desire for shorter hours of work might be met without danger to the mechanical trades, or whether it must be resisted in the interests of all concerned. The wages paid were the same as for fifty-three hours per week. The full complement of men at the Salford Iron Works is 1,200. The trades represented in the works are pattern-makers, iron and brass molders, smiths, coppersmiths, tin-plate workers, engine-fitters, millwrights, electrical mechanics, turners and fitters, brass-founders, boiler-makers, planers, drillers,

borers, machine-tool makers, joiners, and laborers. The character of the work was the same as that turned out during previous years, comprising textile and other machinery.

The trial was during a year of exceeding depression, and when the prices obtained for the output were the lowest on record, but the invoice value of the goods produced amounted to the average value of the six preceding years. This was regarded by Mr. Mather as an unfavorable condition for the test, because, with five hours less work per week for each man without reduction of wages and with prices of the product lower than in any preceding year, it was felt that the ratio of labor cost to selling price would be abnormally high. All the productions were subject to keen competition at home and abroad. No monopolies of any kind were included in the year's trial. One-third of the men employed were on piecework wages, and that system received a thorough trial, as well as the weekly wage system. No extra preparations were made for the year's trial, and no unusual instructions were given. Mr. Mather's own language best explains the method adopted to insure accuracy in the trial:

> In order to carry out the trial with scientific precision and care, a very competent engineer accountant, a member of the staff at the works, who was perfectly familiar with the subject, having occupied the position for some years, was deputed to take daily and weekly notes of the smallest details of time and cost throughout the year. His method of keeping the books relating to cost and production and the statistical knowledge he possesses, gathered from a large experience of all questions involved in the various processes of our manufactures, render the results which are recorded in the report absolutely correct and trustworthy.

The inauguration of the year's trial was arranged with the officials of the Amalgamated Society of Engineers and with the approval of the unions.

For the purposes of the test, work began March 1, 1893, and terminated February 28, 1894. The figures taken as the standard of comparison were the wages for the six previous years at fifty-three and fifty-four hours per week. The production during the trial year was actually greater, but the "turnover," on account of cheap prices, was somewhat less. This resulted in showing an increase of 0.04 per cent in labor cost, but it is rather a remarkable fact that the economy in shorter hours for burning gas and fuel, for wear and tear to tools, machinery, etc., amounted to a saving of 0.04 per cent, thus exactly equaling the increased labor cost. In the fifty-three and fifty-four hours' work the lost time amounted to 2.46 per cent, while in the forty-eight hours' work it amounted to but 0.46 per cent.

The result of the trial on piecework was looked forward to with most interest, it being the natural assumption that every man was already doing his best in this manner of work. The firm divided the year into three equal parts to test the results in this connection. In the first period, the wages realized were 1.76 per cent less than the standard piecework wages; in the second, 1.58 per cent less; and in the third, 0.78 per cent less, the average for the year coming to 1.41 per cent less than the standard. These figures, it is argued, show a steady adaptation to the altered conditions, and indicate that, as the work proceeds in the new year, the difference will entirely dis-

appear. The piecework rates were not advanced in anyway during the year.

Mr. Mather was so impressed with the new system that he recommended the Government departments to adopt it, and urged it upon the War, Admiralty, and Post-Office departments. To this end he was invited to meet the chiefs of these departments, and, since that time, both the War and the Admiralty departments have adopted the system for laborers.

Mr. Mather observes in his report that it has been demonstrated that the two morning hours before breakfast are not worth the pains and trouble they cost, whether to the work people or the employers. He advances the proposition that these two hours' work must be damaging, both physically and mentally, or why should these men perform just as much work when these hours were struck off as when they were employed? The conclusion is that the two hours are worthless as to time, and diminish the vigor, freshness, and brightness of the men. Under the new conditions, the men work more in harmony with natural laws, instead of against them. The men have a better home life, because every man can now associate with his family before leaving for the day, and the breakfast table may give him a good "send off" in a cheery spirit that maintains him in all he does. Of course, the system abolishes the "overtime" practice, in which extra wages are obtained at too great a cost to the workman. The double-shift system is better, but, it is urged, the true means for larger production is increased producing power in men and machinery. Men should be worked only so long as they work at their best. When this stage is passed, there is no true economy in their continued work. Concluding, the author of this report says:

> Our year's trial has convinced me that we have found the happy medium in the number of hours during which only one meal and one stoppage are needed, and this resolves itself into the eight-hour day or forty-eight-hour week.

Extracts of reports from foremen of different departments are given, showing that the men were more steady at work, more cheerful, and less given to insobriety while on the eight-hour system. The moral tone was also improved, and all seemed brighter and more cheerful.

Almost equally important has been the trial given the eight-hour system by the Sheffield Smelting Company, in which another member of Parliament—Mr. J. H. Wilson—is a principal. At this place the plan has been in operation for two years. The result has been summed up as follows:

> A careful comparison has been drawn between the result of the working of the past two years and that of the two preceding. The wages of the two years before and the two following the change have been taken and compared with the total amount of material smelted and the amount of bullion produced, and it is found that the cost in wages for both—per ton of material smelted and per ounce of bullion produced—had been slightly less under the new scheme. The effect on the work people has been notable. The men have been fresher and brighter in every respect. Instead of, as in former years, dragging out the latter portion of their time tired and weary, they have shown an increased cheerfulness and interest which has been manifested in

both the quality and quantity of the work accomplished. The figures taken as the standard with which to compare results were those of the years 1890 and 1891, during which the average working hours were fifty-four and fifty-five per week, and in some departments even longer than that. The production has been similar in amount, there being, perhaps, a slight increase in the trial years. It has been found that in the latter period the men have earned practically the same wages as under the old régime. In a few isolated cases the abolition of overtime has slightly reduced the gross earnings, but in most cases there has been no reduction except the very substantial one in the hours of labor. In comparison with the work done, no more men are employed than was formerly the case, and, curiously enough, in many instances, the same men in the shorter hours were found to do fully as much work as they formerly did. The main point is that the work people, by being fresher and untired, are able to keep up a better pace throughout the day.

Attention must be called to the serious depression of trade caused by the coal dispute, during the greater portion of which the firm was not at full work, and during a few weeks almost at a standstill. Notwithstanding this, the men were all kept at work and did not lose through the action of the firm the equivalent of one man's work for a week. Taking this fact into consideration, it is clear that but for the want of work, incident on the lockout, the men would certainly have done more for the same wages, and the slight margin of difference between the quantity done in the two would have been more obvious. Under the present system, it may be mentioned, the ordinary day men start work at 7 instead of 6:30 in the morning, as was formerly the case, leave work at 5 instead of 5:30, and stop working on Saturday at 1 o'clock instead of 1:30.

The system has therefore been permanently adopted.

The J. & F. Howard firm of agricultural-implement makers at Bedford, employing 500 men, have issued a notice that they will begin with the eight-hour system on the 1st of April, paying the same wages as for the fifty-four-hour week.

Mr. D. A. Thomas, M. P., intends introducing a bill into Parliament providing for an eight-hour day for coal-winners.

Permission has been given by the first commissioner of works for an "eight-hour demonstration" to be held in Hyde Park, London, on May 6.

It has been proposed by a resolution of the Birkenhead town council to reduce the hours of ferrymen from seventy-four per week to fifty-six per week, a difference of eighteen hours.

CLAUDE MEEKER,
Consul.

BRADFORD, *April 20, 1894.*

ELECTRICAL SMELTING IN GERMANY.*

Among the recent German inventions in metallurgy, one of the most interesting, by reason of its simplicity and its probable value in practical application, is a process invented by Mr. Edward Taussig, of Bahrenfeld, for

* See previous report of Consul-General Mason on "Revolution in Electric Heating," CONSULAR REPORTS No. 153 (June, 1894), p. 228.

the smelting and casting of metals by electrical heat, under the influence of rarefied air.* The operation consists in fusing ores or metals in a closed furnace or chamber, the hearth of which is connected with molds into which the fused metal flows by gravitation, and is cast into any desired form, and in both of which (molds and furnace) the air has been rarefied as far as practicable through exhaustion by air pumps or other mechanical means.

The apparatus includes a long, air-tight smelting channel or chamber, the hearth of which inclines to a central orifice, through which the fused metal passes into the molds. This chamber is filled with the metal to be smelted, and heat is generated by passing an adequate current of electricity through the mass without the use of any kind of fuel, or the employment of carbon electrodes. In this latter respect, the inventor of this process claims that it is entirely original and distinct from all other electrical smelting systems now in use in this country.

The furnace is lined with glazed fire bricks, which are so efficient a non-conductor as to insulate quite perfectly the contents of the chamber, so that the heat is developed where it is required evenly throughout the mass, and very little, if any, loss of current is experienced. From the testimony of experts who have examined this process in operation, it appears that a degree of heat sufficient to smelt pig iron in fifteen minutes can be generated and maintained without unduly heating the other parts of the circuit, and this is equally true of the smelting of easily fused metals like lead and zinc, and of Siemens-Martin steel of Swedish origin, which is known to be one of the most refractory of all the useful metals.

The entire absence of coke, coal, or carbon electrodes secures to the fused metal nearly absolute purity, and the continued exhaustion of air and the gases generated by smelting increases the fluidity of the molten material and wholly prevents oxidation and blistering and produces castings of a dense, smooth quality, which have shown, under elaborate tests made by unimpeachable authority, the highest mechanical qualities of which cast iron is capable.

Without attempting to estimate the practical value of this process or its future range of application, it is fairly within the province of the present report to consider what may be reasonably inferred as to the limitations by which the industrial process will be restricted, and its probable economic efficiency for smelting and casting. For smelting raw ores, the most obvious advantage claimed for it is that it can be worked wholly by water power and without fuel in mountainous and remote districts which produce ores and have abundant water, but no coal.

*In transmitting his report, Consul-General Mason says: "It is believed that this process, which is not yet patented in the United States, may have a practical interest for many foundry men and producers of iron and steel in our country. In this connection, it may be of interest to know that the American patents for the Otto-Hoffman system of coke manufacture, with saving of the by-products, as described in a report from this office which was published in CONSULAR REPORTS No. 155 (August, 1893), p. 387, have recently been purchased by a syndicate organized at Pittsburg and Cleveland, which is preparing to establish extensive works under that system at several localities in the United States."

For fusing iron, steel, or other metals for casting purposes, the advantages claimed are rapidity of operation, improved quality in the castings, susceptibility of continuous working, and—even where steam power is used to generate the current—an economy of fuel which is estimated at from 30 to 50 per cent of the coal used in smelting by the ordinary method. From what has been already stated, it would appear that the practical limit of capacity will be a furnace or fusion channel from 36 to 40 feet in length and capable of containing at one charge about 1½ tons of metal. By working such a furnace with a current of 30,000 ampères and 50 volts—which would represent a force of about 2,000-horse power, or somewhat less than the energy employed in the reduction of aluminium at Neuhausen—the entire charge of 3,000 pounds can be fused and run into castings within a quarter of an hour. By repeating the operation as rapidly as the charge can be replaced and smelted, a single furnace of this capacity can be made to turn out in a working day a large quantity of castings, and when motive power for generating the current is supplied by water, or even by steam made with a low, cheap quality of coal, the economy of the process over present methods would seem to be obvious.

Comparisons have been made with the well-known results of making iron and steel castings by smelting in a Siemens-Martin regenerative furnace, where from 1,000 to 1,400 pounds of coal are burned to smelt 2,000 pounds of iron. Assuming that water power for the Taussig process is not available, and that the dynamo and air pumps must be worked by steam, it is claimed that the same result, viz, the smelting of 2,000 pounds of iron or steel, can be effected by the consumption of from 720 to 800 pounds of steam coal—an economy of 50 per cent in the use of fuel. This economy is still greater if, instead of the foregoing comparison with smelting in a Siemens regenerator, we consider the treatment of steel in crucibles, where 1,200 pounds of the best coal is consumed for each 1,000 pounds of steel, and this proportion is increased to 1,500 or even 1,600 pounds when the coal used is of inferior quality and yields a large percentage of ash. It is, therefore, confidently asserted by experts who have examined this new electrical (vacuum) smelting process that it will secure a saving of more than half the fuel that is now required for the fusion of steel in crucibles, and that the saving would be proportionately greater under conditions which would enable the current to be generated by water power.

While the preliminary experiments—which have been conducted with a current of 18 to 20 horse power—have been brilliantly successful, with resulting products of high and uniform quality, the practical application of this new process on an industrial scale has yet to be made. Works have been built at Copenhagen, where it will soon be put into practical operation, and a syndicate has been organized for a similar purpose in southern France. The first use of the system will be in the production of small castings of iron and steel, in which high quality, smoothness of surface, and freedom from flaws and air holes are especially important. In the earlier experiments,

four-bladed propellers of a size suitable for electrical or steam launches were cast with such excellent results that the ultimate success of the process for fine castings up to a certain size would seem to be assured.

In the production of pig iron and other metals direct from the ores, greater difficulties will no doubt be encountered, for the reasons, among others, that the charge to be smelted will be necessarily small, and the furnace must be so constructed as to provide for the elimination of the scoriæ. The experiments in this direction have been made thus far on only a small scale, but the produced iron, owing to the absence of coal or coke and the prompt withdrawal of the air and gases generated by smelting, is very pure; and since it contains a much lower percentage of carbon (2.99 per cent) than ordinary iron, it would seem to be well adapted to the manufacture of steel.

It is estimated that with a plant equipped with a motive force of 500 to 600 horse power and supplied with good, ordinary 48 per cent ore, the cost of producing a ton of pig iron—allowing $2.40 per ton as the price of the ore—would not exceed $9.65, and this, in the opinion of the inventor, could be easily reduced to $8 per ton if a motive power of 1,000-horse power were employed. In a report on this process which has been published in L'Electricité, a leading electrical journal of France, the statement is made that—

> The uniform distribution of the heat by the electric current through the mass to be melted adds to the advantages of the process that of perfect equality in the product, and, in fact, everything leads to the belief that the application of this system will afford a vast field for remunerative working. The cost of a new installation of this kind on a large scale would very slightly exceed that of an ordinary installation of the same importance. In reality, it would cost less, as the new system would be free from the expense of furnace repairs and replacement of crucibles, which is so large an item under the old one. In both systems, the manual labor is about the same. In the new one, it is, perhaps, rather less, as the work of charging the furnace is done away with, and the direct method of casting from the apparatus is more simple and economical, in addition to the fact that much less fuel is employed.

Putting aside, therefore, all mere conjectures and theorizing, and adhering strictly to what has been thus far accomplished, the record of actual results would seem to be:

(1) It has been shown that by this process a degree of heat sufficient to smelt a ton or more of iron within fifteen minutes may be generated, sustained, and applied at will without the use of carbon electrodes and without excessive heating or injury to other portions of the circuit. This, alone, is a fact of dominant and far-reaching importance.

(2) Castings of iron and steel, up to a weight of 200 pounds or more, have been made, which have shown all the desirable qualities—smoothness of surface, fineness of texture, and freedom from many of the impurities which are always more or less incident to smelting by ordinary methods.

(3) Pig iron of excellent quality has been produced in small quantities by direct smelting from Swedish ores. The tests of this iron, as made by the Royal School of Mines at Berlin, have been published in several technical journals. These tables are too abstruse and complicated to be of general

interest, but the net results may be summarized in the statement that the tractile strength of a round rod 10 millimeters in diameter was 3,410 pounds, and the resistance to compression of a rod 301 millimeters in length and 30 millimeters in diameter was 57,850 kilograms, or 127,270 pounds.

FRANK H. MASON,
Consul-General.

FRANKFORT, *April 26, 1894.*

CHANGES IN THE MEXICAN TARIFF.

Under date of May 1, Minister Gray transmitted to the Department from the city of Mexico a copy and a translation of an executive decree, published in the Diario Oficial of April 30, amendatory of the Mexican tariff law of June 12, 1891. These amendments go into effect on July 1, 1894.

In the following arrangement, the existing tariff rates are printed in brackets immediately following the amended rates. In some cases, the amended schedules are not mentioned in the tariff of June 12, 1891, while in other cases the wording is more or less different. The matter in brackets, however, will enable the reader to form a fair estimate of the changes resulting from the amended schedules.

The Mexican tariff rates are assessed on net, legal, and gross weights. The "net" kilogram is the intrinsic weight of merchandise, without inclosures, wrappings, or packings; the "legal" kilogram is the intrinsic weight of merchandise, including wrappings, bottles, pasteboard, tin, or wooden boxes inside the outside case; the "gross" kilogram is the weight of merchandise, inclusive of all wrappings, inside and outside.

The rates in brackets are those given in the publication of the Bureau of the American Republics, entitled "Import Duties of Mexico," Bulletin No. 21 ("New Tariff Corrected to October 1, 1891").

TARIFF AMENDMENTS.

ARTICLE 1. The tariff schedule in force in the service under the general ordinances of maritime and frontier custom-houses is hereby modified and enlarged, as hereinafter specified, to read:

Fraction 233.—Common bags made of jute, pita grass, tow, or hennequen, 3 cents per gross kilogram.

[Not specified in existing tariff.]

Fraction 276A.—Goods, not specified, of copper, bronze, or any other base metal, gilded or plated with silver, whose weight exceeds 10 kilograms, 40 cents per legal kilogram.

[Articles of copper, brass, bronze, or white metal, weighing not more than 10 kilograms, 20 cents per legal kilogram; articles, not specified, of same metals, but gilt or silver plated, $1.50 per legal kilogram.]

Fraction 283.—Jewelry or trinkets of any metal, save gold, silver, or platinum, not gilded or plated with silver, 50 cents per legal kilogram.

Fraction 283A.—Jewelry or trinkets of any metal, save gold, silver, or platinum, gilded or plated with silver, $1.50 per legal kilogram.

[Jewelry or ornaments of copper or brass, plain, gilt, or plated, 60 cents per legal kilogram.]

Fraction 322.—Iron in pigs of first smelting or in filings or scraps, 1 cent per gross kilogram.

[Not designated in existing tariff.]

Fraction 322A.—Coarse forged iron (*tocho*) in ingots or pigs and steel in pigs, 2 cents per gross kilogram.

[Not designated in existing tariff.]

Note 107.—The ingots or pigs referred to in fraction 322 are to be products of the first fusion or smelting of the metal. The filings can be of any thickness, and may include chips and shavings. Iron of first fusion is distinguished from the coarse forged article by its brittleness. A piece of cast iron, 3 to 4 inches square, or of same thickness, placed on the ground, can be broken by five or six blows of a 15-pound hammer of the kind called "macho" (sledge) by blacksmiths or ironmongers, while it is impossible to break the "tocho" or forged iron in the same way.

Fraction 367.—Marble or alabaster, in rough or in powder, 1 cent per gross kilogram.

Fraction 367A.—Marble or alabaster in sawed slabs, unpolished, 5 cents per gross kilogram.

[Marble and alabaster in the rough, in sawn slabs, unpolished, or in dust, 1 cent per gross kilogram.]

Fraction 378.—Oil, mineral, impure, 3 cents per net kilogram.

[Oil, mineral, crude, 2 cents per gross kilogram.]

Note 125.—Impure mineral oil is understood to be the product of the first distillation of the shale and crude petroleum. Its color is brown-red or red in body and green in reflection. It is greasy and of pungent odor. It is unsuitable for lighting purposes, even though it contain a certain proportion of volatile properties.

Fraction 389.—Manufactured goods of alabaster or marble, not specified, when the weight of each does not exceed 50 kilograms, 25 cents per gross kilogram.

Fraction 389A.—Manufactured goods, not specified, of alabaster or marble, when the weight of each does not exceed 50 kilograms, for the first 50 kilograms the preceding rate of 25 cents and 15 cents for each kilogram in excess thereof.

[Articles, not specified, of alabaster or marble, 20 cents per gross kilogram.]

Fraction 404.—Slabs of marble for floors, dressed only on one side, the other side being in rough, of any shape or size, 1½ cents per gross kilogram. (The same up to 40 centimeters square, 1 cent per gross kilogram; of more than 40 centimeters square, 3 cents per gross kilogram.)

Fraction 406.—Slabs of marble for furniture and slabs with edges polished or carved, 12 cents per gross kilogram.

[Slabs of marble for furniture and such as have polished or carved edges, 15 cents per gross kilogram.]

Fraction 419.—Bottles of ordinary glass, without glass stoppers, to hold wines, spirituous liquors, and beer, 1 cent per gross kilogram.

Fraction 419A.—Bottles or flasks of ordinary glass, without glass stoppers, especially designed for holding liquors, provided the name of the liquor or liquid or other substance or the name of the dealer therein is indelibly wrought into the glass, 5 cents per gross kilogram.

[Bottles of common glass, for ordinary packages of wine, beer, or liquors, 1 cent per gross kilogram. Bottles under fraction 419A are not designated in the existing tariff.]

Note 143.—Fraction 419 covers only ordinary bottles of common, clear, or opaque glass, whose form adapts them only for common uses, such as the bottling for sale of wines, spirituous liquors, beers, vinegar, etc.; but fraction 419 does not include bottles having worked indelibly therein names, marks, figures, or other designs.

ART. 2.—Hereby are declared null and void the following, to wit:

Fraction 405.—Slabs of marble for floors, in size more than 40 centimeters square.

Fraction 704.—Patent pharmaceutical products; also

Note 223, explanatory of fraction 704 (sticking plasters, mustard plasters, etc.), modified by decree of February 22, 1893.

Fraction 887.—Flower vases, works of art, etc.

[The existing tariff does not specify "patent pharmaceutical products," merely specifying "drugs, medicinal and chemical, and pharmaceutical products, 75 cents per legal kilogram." Plaster and plaster cloth, 50 cents per legal kilogram; flower vases, works of art, etc., weighing more than 50 kilograms, 5 cents per gross kilogram.]

ART. 3. Explanatory notes Nos. 107, 125, and 143 of the tariff schedule are hereby modified to read as follows: [See note 107, under fraction 322; note 125, under fraction 378; and note 143, under fraction 419.]

ART. 4. To the notes explanatory of the tariff now in force is added note 309, referring to fractions 614, 615, and 615A, and others of same category of said tariff.

Note 309.—The quota of $3.50 (net kilogram) of fraction 614 shall be levied on goods made of velvet or plush, with silk nap in part or throughout the surface, the warp and woof being solely of cotton, linen or wool, and only the nap being silk.

[Velvet and plush, silk, in ground of cotton, linen, or wool, $3.50 per net kilogram.]

The quota of $5 (net kilogram) of fraction 615 shall be levied on goods of plush or velvet, with nap of silk in part or throughout the surface, the warp being of silk with mixture of cotton, linen, or wool, and the woof without mixture of silk, or *vice versa*.

[Velvet and plush, silk, on ground of cotton, linen, or wool, mixed with silk, $5 per net kilogram.]

The quota of $7.50 (net kilogram) of fraction 615A shall be levied on goods made of plush or velvet, with silk nap in part or throughout the surface, the warp and woof being of silk with mixture of cotton, linen, or wool. It shall likewise be levied on such goods of plush or velvet whose warp is all silk and whose woof is silk mixed with cotton, linen, or wool, or *vice versa*.

ART. 5. The Treasury Department shall amend the vocabulary annexed to the general customs ordinance in force in all parts necessary to adopt the same to the modifications and additions to the tariff and to the explanatory notes, subject to the present decree.

ART. 6. Clause 3 of article 208 of the ordinance is hereby changed to read as follows: "When it is desirable to convey only coined money, fruits, garden products, fresh vegetables, native beer in casks, fresh meats, and live animals."

ART. 7. The following regulation for the application of the tariff is likewise hereby amended to read as follows (XII, paragraph 3): "White handkerchiefs with trimmings, fringes, embroidery, or other workings in color shall be considered as colored goods."

ART. 8. In all the fractions of the tariff wherein one and the same article come under different rates, according to the greater or less weight (save in the case of cloths), duties shall be levied, applying the highest rate up to the limit given as basis therefor and the lesser rate or rates on the number of kilograms in excess of such basal limit.

ART. 9. This decree shall take effect on the 1st day of July next. It shall cover all merchandise imported in vessels reaching Mexican ports after 12 o'clock (midnight) of June 30 ensuing, and all merchandise entering at the frontier after said hour of said day, the respective custom-house having received the same.

SMALL IMPORTATIONS INTO THE MEXICAN FREE ZONE.

The decree of the Mexican Government relative to small importations into the free zone, issued on December 27, 1893, has been wrongly interpreted in the note on page 488 of CONSULAR REPORTS No. 162 (March, 1894) and on page 31 of the monthly bulletin of the Bureau of the American Republics

for January, 1894. I herewith submit as an inclosure a copy and translation of the decree, furnished me through the courtesy of the collector of customs at this place, from which it will be seen that no provision is made for the "free importation" or the "exemption from custom-house duties" of merchandise of less than $50 in value. It provides that small importations of foreign goods coming from towns opposite the Mexican custom-houses, and for consumption in the frontier places, may be made by "permits of importation" (instead of consular invoices) issued by the respective custom-houses, provided the value of the goods is not in excess of $50. Prior to January 1, 1894, this kind of merchandise was admitted at this port with a permit of importation instead of consular invoice, provided the Mexican duties on the same did not exceed $100. Therefore, so far as this port is concerned, the decree of December 27, 1893, greatly lessens the privileges enjoyed by the people here in regard to this class of importations.

THEODORE HUSTON,

PASO DEL NORTE, *April 11, 1894.* *Consul.*

DECREE OF DECEMBER 27, 1893.

[Translation.]

* * * * * * *

ARTICLE 1. That article 468 and fraction 1 of article 469 of the ordinance of maritime and frontier custom-houses be modified as follows:

ART. 468. (1) Small importations of foreign goods coming from towns opposite the Mexican custom-houses and for the consumption of the frontier places may be made under cover of "permits of importation" issued by the respective custom-houses, provided the value of the goods does not exceed $50.

(2) Should it be ascertained that goods admitted under such a "permit of importation" exceed the value of $50, the importer shall be fined in double the amount of the consular fees which the certification of the corresponding invoice would have caused.

ART. 469. (1) The importers shall present to the collector of customs a petition, in quadruplicate, according to model No. 47. In these petitions the declaration of the goods shall be made in the manner prescribed by article 44 of the ordinance for consular invoices, each full-sized sheet to bear legal document stamps of the value of 50 cents.

EFFECTS OF THE COMMERCIAL TREATY BETWEEN GERMANY AND RUSSIA.*

The treaty of commerce and navigation between Germany and Russia, which is recognized by economists as one of the most important and far-reaching acts of international comity that has been accomplished in recent times, was finally ratified by the Reichstag on Friday, March 16, and went into effect on the 20th of that month. Its effect, which had been to some

*See CONSULAR REPORTS No. 163 (April, 1894), p. 675—"American Breadstuffs and the Russo-German Commercial Treaty."

extent discounted in advance of its final adoption, has been to give a strong and bouyant impulse to the leading branches of German manufacture and to general commerce throughout the Empire. Particularly is this true of chemicals and colors, all kinds of paper manufacture, iron and steel, millinery, dress goods, and most articles of luxury, and especially of agricultural implements and machinery. In most of these departments, heavy orders have been given from Russia during the winter, subject to the contingency that the treaty, as agreed upon in February, should be finally adopted. As the first result of the final affirmative vote, many of the larger paper mills, which had previously been working only five or six hours per day with reduced forces, started up on full time with their maximum complement of operatives, and the same is true of the principal manufactories of agricultural implements and harvesting machinery.

It was feared that the practical suspension of trade between the two countries during the eight months of the tariff war would enable the Russian makers of farming machinery to become so well established that the German manufacturers would find their former lucrative market in Russia fully supplied by implements of home manufacture. But this, judging from the developments of the past two weeks, does not seem to be the case, for the reason, among others, that although Russian manufactures of many kinds are steadily developing, the improvement in agricultural methods and the consequent demand for better implements and labor-saving machinery are advancing still more rapidly, so that now, when the tariff barrier has been finally lowered at the frontier, German exporters find a ready and urgent demand in Russia, which it will require several months of prosperous activity to supply.

There are, as is usual in such cases, many conservatives who, for agrarian and other reasons, were opposed to the treaty, and who now predict that this suddenly restored activity is fictitious and will be short lived; but the essential fact is that Russia is now more generally prosperous than at any time during the past ten years, and the effect of the treaty negotiations has been to demonstrate and emphasize anew the close commercial relations which exist naturally between the two countries, and to neutralize to a great degree the hostile and resentful feeling toward Russia, which, a year ago, was so outspoken and aggressive on the part of the commercial and manufacturing classes in Germany. The fact that the new compact is recognized everywhere as an additional guaranty of international peace, and to that extent a check to increased and more costly armaments, has had a powerful influence in consolidating public opinion in its favor, and this feeling is shared by many men of experienced judgment who think that, technically, Russia has obtained on many points the best of the bargain. While the agriculturists dread the new and potent competition to which their products will be henceforth exposed in their home markets, merchants and manufacturers are correspondingly elated, and the outlook would seem, for the moment at least, to justify their highest expectations.

Even the bankers of Berlin, Frankfort, and other financial cities, who are habitually conservative, and whose business reflects quite accurately the real condition of industry and trade, now share in the generally hopeful spirit, and predict that the period of prosperity, upon which Germany seems to be entering as the natural outgrowth of restored normal conditions, will be healthy and permanent.

How marked has been the first effect of this new commercial freedom upon one important branch of German manufacture—that of chemicals and colors—will be indicated by the following exhibit, in which are shown the market values of the common-stock shares of eight of the principal aniline and chemical companies in Germany on February 28 and March 28, respectively, and the increase in value of each stock during the fortnight preceding and just following the adoption of the treaty. These shares, it will be understood, are regularly listed and dealt in on the bourse, and have a nominal or face value of 100 marks, equal to $23.80.

Stock.	Last dividend.	Value, February 28, 1894.	Value, March 28, 1894.	Increase per share.
	Per cent.			
Farbwerke, Höchst	26	$81.60	$88.06	$6.46
Badische Aniline Fabrik	27	80.44	89.96	9.52
Gold and Silver S. Anstalt	15	55.93	59.73	3.80
Chemical works, Griesheim	16	55.69	58.78	3.09
Chemical works, Weiler	14	42.36	45.69	3.33
Chemical works, Schering	19	61.16	70.21	9.05
H. Bayer, Elberfeld	18	57.83	63.30	5.47
Potash works, Aschersleben	10	35.22	39.74	4.52

A similar improvement, more or less marked, appears in the values of other classes of industrial stocks, but the foregoing quotations will serve to illustrate in general the first effects of the completed treaty upon German manufacturing interests.

THE TREATY AND REFINED PETROLEUM.

A careful study of the treaty itself confirms the impression that, in its preparation, the Russian commissioners displayed great ability and consummate knowledge of the interests which they were negotiating to promote. Among many instances of their foresight, may be cited the clause which relates to the duty on refined petroleum imported into Germany, and which, by reason of its direct relation to imports of American kerosene, is worthy of notice here.

Hitherto all crude and refined petroleum imported into Germany has been subject to a uniform specific duty of 6 marks (1.42\frac{8}{10}$) per 100 kilograms (220.46 pounds), and mineral lubricating oils to a rate of $2.38 per 100 kilograms, the duty in all cases being assessed upon the weight of the merchandise. The tariff war, which began in August last, added 50 per cent to the above rates on all oils of Russian origin, and, for the time, all

but suspended imports from that country, the result being a corresponding impetus to German imports of American lubricating oils and kerosene. Under the general law, as it has stood since 1874, American petroleum has enjoyed a definite advantage over imports of Russian oils by reason of its lighter specific gravity. The specific gravity of American crude oil is about 0.790, while naphtha from Baku registers 0.820. Standard white Pennsylvania kerosene averages in gravity about 0.800, while Russian ranges from 0.825 to 0.828, with a commercial average of 0.826. In other words, 800 gallons of Russian petroleum weigh as much as 826 gallons of American, and the German importer could land 826 barrels of the American product by payment of the same amount of duty that would be charged on 800 barrels of kerosene from the Caspian district. The difference was not, of course, enormous, but in an import trade of such vast proportions as the petroleum traffic in Germany, it has had a certain importance, and such advantages as the difference in gravity conferred have been all in favor of American oils.

But the treaty with Russia now amends the general tariff law of Germany so as to provide that the German importer of petroleum products of a nature to be used for illuminating purposes shall enjoy the option of having the duty assessed either upon the weight or the bulk of the merchandise. In other words, he may pay the prescribed tax per 100 kilograms or per hectoliter, in which latter case 125 liters (33⅛ gallons), at a temperature of 15° Celsius, are to be the equivalent of 100 kilograms, the tare allowance being, as hitherto, 25 per cent of the gross weight.

The practical effect of this amendment will be readily obvious. Every importer of Russian kerosene will pay duty on the bulk or measure of his goods, and can import 826 pounds or tons of oil for the same duty that will be paid on 800 pounds or tons of the American product. But, as kerosene is sold and retailed by measure and not by weight, the net practical effect of the treaty amendment will be to abolish the advantage which the American oils have hitherto enjoyed by reason of their lighter gravity, and put both upon an equal footing in respect to duty, where they must compete on their respective merits as illuminating material.

The best authorities unite in declaring that the best grade of Russian kerosene is fully equal to the best American in illuminating power. But the Russian oil is heavier and of such consistency that for good effect it requires to be burned in a lamp especially adapted to its use, the burner differing from the American model. Coming first into the German market, the American kerosene brought with it the American lamp, and this has been imported and copied until the entire country is supplied with it, the effect being thus far that American kerosene, although retailed at a higher price than the Russian, has held its well-established supremacy in German consumption. Whether the now equalized conditions of importation, as established by the Russian treaty, will have an important effect in promoting imports from the Caspian region at the expense of those from Pennsylvania and West Virginia can only be determined by the test of actual experience.

From all that can be seen, the immediate influence of the new clause concerning kerosene will not be serious, but in respect to lubricating oils Russia will at once resume her former position as the source of nine-tenths of the imported supply of Germany.

GENERAL INFLUENCE UPON TRADE.

As to the general influence of the treaty, there can be no doubt or question. Both countries are striving by every means to enlarge and extend their foreign trade; each will make the utmost of every new advantage which has been acquired, and the competition in their respective markets will become, in future, correspondingly more difficult for imports from Great Britain, France, Belgium, and the United States.

FRANK H. MASON,
Consul-General.

FRANKFORT, *April 4, 1894.*

THE FORAGE OUTLOOK IN SWITZERLAND.

The drought prevailing last year in western Europe is apt to repeat itself. People here in Switzerland already predict a dry season, and should this prove true there is a chance for American farmers to place considerable hay in Switzerland.

A large quantity of American hay found its way into Switzerland last season, the municipalities of each town or village being the purchasers. They bought large quantities and distributed it among the people at cost, thus preventing unscrupulous dealers from taking undue advantage of the crisis by raising the price of hay beyond the reach of the poorer classes.

If a rain does not come soon after a winter almost bare of snow, forage and grain crops will be a failure, and our farmers will, perhaps, have a good market for their hay. I would say, however, that poor hay is not wanted in this country; nothing but the very best quality, and of strictly honest baling, is in demand. Hay should be put up in 100 or 200 pound bales, firmly pressed, and wire bound.

Rates from American ports per transatlantic steamship lines on baled hay are from $8 to $10 per ton of 2,240 pounds to German, Belgian, or French ports. The rail rate in carloads from either Antwerp or Havre to Basle, Switzerland, is $3.75 per metric ton of 2,204 pounds.

Hay, when properly protected, can safely be shipped by sailing vessels, thereby obtaining lower ocean rates than by steamships. Hay is admitted free of duty into Switzerland.

EUGENE GERMAIN,
Consul.

ZURICH, *April 10, 1894.*

RUSSIA'S TRADE WITH GERMANY.

The tariff war between Germany and Russia is at an end; to-day the new treaty came into operation, to remain in force for a period of ten years. There can be little doubt that the conclusion of this treaty was most anxiously desired, although a powerful party, representing industrial interests, set its face against any approach to Germany, demurred to any reduction of the customs tariff, and with the aid of a public organ ventilated its grievances and foreshadowed utter ruin to Russia's industries should any concessions be made to her unfriendly neighbor. But the agitation fell flat, for the concessions demanded by Germany did not prove unreasonable nor her attitude unfriendly, so that the objections advanced by the Russian protectionists were not justified, and the Government paid no heed to them.

Meanwhile, the effect of the tariff war asserted itself in this country in a fashion that it would have been arrant folly to deny or to ignore. It struck the most vital interest of the country by cutting it off from the principal market for the sale of its breadstuffs and by depressing the prices about 30 per cent. Two successive years of famine, followed immediately by so mischievous a tariff war, lent but scant hope for the recovery of the agrarian population from its impoverished condition, nor is it clear how an industry, possessing no possible outlet for its manufactures beyond the limits of its own country, could continue to prosper, even though unaffected by so widespread a depression.

It is already admitted that a great evil has been averted by the adoption of the treaty, and that Russia is amply recompensed by what she has obtained from her neighbor in return for her concessions. The term of the treaty is one of its most valuable qualifications, because it removes that uncertainty which has so long deprived commercial enterprise in this country of every sound basis of calculation. The ever-changing customs tariff has been the trader's constant nightmare, a spontaneous destroyer of his stability, upsetting his estimates, and reducing sober business undertakings to hazardous speculations. Now, there is, at least, a fair promise of ten years constancy upon which to base speculations.

From the statistics I have been able to collect, it appears that the annual production of grain in Russia averages about 215,000,000 quarters,* of which 185,000,000 quarters are consumed for food and seed and 30,000,000 quarters remain for export, of which 25 per cent goes to Germany.

Of the total import of oats, rye, and wheat into Germany in 1890, Russia supplied 93 per cent, 85 per cent, and 55 per cent, respectively.

The total annual value of Russian exports to Germany is $105,000,000; total value of the exports affected by the new tariff, $60,000,000; reduction of duty thereon, $4,500,000.

*1 quarter=8 bushels.

The annual value of breadstuffs exported from Russia to Germany is $42,500,000; reduction of duty thereon, $4,250,000.

The new tariff reduces the duty on wheat and rye entering Germany 80 cents per quarter and oats 42 cents per quarter.

N. W. HORNSTEDT,
Vice-Consul.

Moscow, *March 20, 1894.*

AMERICAN TRADE WITH BAGDAD.

Hitherto the trade between the United States and Turkish Arabia has been one of export from Bagdad. I believe the following American goods could find a market here, if properly introduced:

Cotton fabrics, striped and of the most brilliant colors.

Cutlery and firearms, if the latter are not contraband. I believe shotguns are not contraband. Still every Bedouin is now armed with an American rifle, smuggled in from England.

At present, all the petroleum used here comes from Baku, but I have heard expressions of desire for American petroleum.

More than half the goods imported here are for the Persian market, most of the trade with Persia being an exchange or barter trade.

There was no American consul here previous to March 12, 1893. The exports for the United States previous to that date were declared at the British consulate-general, and no account of the quantities or values was kept.

The following figures show the value of the exports declared at Bagdad for the United States during the fractional part of the year ending June 30, 1893, viz, from March 12 to June 30:

Bagdad specialties (textile fabrics, etc.)	$173
Licorice root (590 bales)	3,830
Wool (2,306 bales)	101,467
Total	105,470

The mails from Constantinople are very irregular, and letters are often more than a month longer coming that way than via Beirut. I would, therefore, advise that all letters be marked via Beirut, although even such directions are sometimes ignored.

JOHN C. SUNDBERG,
Consul.

BAGDAD, *February 14, 1894.*

TARIFF EXEMPTION IN SALVADOR.

I am glad to report to you that the Government of Salvador has just made a material concession to the export trade of the United States, of which our exporters should take advantage.

In a report dated January 31, 1894, I advised the Department that the President of Salvador had issued a decree imposing an additional duty of 25 cents (gold) per quintal (100 pounds) on all articles thereafter to be imported into this Republic, whether they had been previously on the free list or not.* On the 5th of February, I addressed a letter to the Minister of Foreign Relations, in which I said:

> I beg you to kindly advise me whether the decree in question covers "the products and manufactures of the United States," which, according to the *memoria* of your department, "are to be admitted in Salvador free of customs duties and of any national or local tax."

After several presentations of the matter since then, I received to-day the following communication from the Minister of Foreign Relations, to wit:

> The Minister of the Treasury, in a note of yesterday, tells me that although by virtue of the decree of January 29 (31) of this year a duty of 25 cents (gold) per quintal (100 pounds) has been levied on all kinds of merchandise, the Government will in the future abstain from collecting it with respect to the products and manufactures of the United States. In this way I answer your note dated February 5, giving you all due apologies for the delay in my reply, which has been entirely independent of my will.

As the impost in question remains in force on all other foreign goods, the advantage gained for our exporters is apparent. I have requested, by telegraph, the consular agents at Acajutla, La Libertad, La Union, and Santa Ana to inform importers of the decision.

ALEXANDER L. POLLOCK,
Consul.

SAN SALVADOR, *April 11, 1894.*

* See CONSULAR REPORTS No. 164, p. 80.

NOTES.

Kerosene at Singapore.—Under date of April 7 Consul-General Pratt transmitted to the Department the following circular, issued by J. Lyall, esq., showing the status of the kerosene-oil trade at Singapore on March 31:

The market opened in January at a low range of prices, which ruled until nearly the end of the quarter, with a fair off-take. Sumatra oil came forward in increased quantity, but nearly 50,000 cases were transshipped to ports further north, such as Bangkok, Saigon, etc., and did not come upon this market. It will be seen, however, from the figures below that this oil has taken the lead in sales during the three months, a large portion being sold in tins only, without wooden cases. Low prices on spot and high cost in the producing countries, aggravated by the fall in exchange, stopped business in American and Russian case oil, and no new shipments are reported. Russian case oil has almost disappeared from the market for the present, one cause of this being, it is said, the removal of the monopoly in certain marks hitherto given here.

Devoe's oil in January was sold as low as $1.52½, and $1.55 was the quotation until about the middle of March. Langkat oil during the same period ran from $1.40 to $1.45 in wooden cases, less about 17 cents for tins only. During the last fortnight an understanding has existed among holders of American oil which has led to an advance all round, and the following are closing quotations per case, ex-godowns: Devoe, $1.90; Langkat (in wood), $1.57½; Russian tank oil (buyers supplying packages), $1.15.

The steamer *Lochiel*, with a cargo of Batoum oil, called here, but none of her cargo was offered in this market.

The stocks on December 31, 1893, were as follows: American, 81,500 cases; Russian, 4,900 cases; Russian in bulk, equal to 47,000 cases; Langkat, 24,550 cases; total, 157,950 cases.

The arrivals were as follows: February 18, 1894, per sailer *Esperia* from New York (Devoe), 33,000 cases; March 28, per sailer *H. G. Johnson* from New York (Devoe), 28,000 cases; January to March, from Sumatra (Langkat), 68,800 cases; total, 129,800 cases.

The stocks on March 31, 1894, were as follows: American, 99,500 cases; Russian, 800 cases; Russian in bulk, equal to 17,000 cases; Langkat, 40,550 cases; total, 157,850 cases.

The sales for consumption and export during the quarter have been as follows: American, 43,000 cases; Russian, 4,100 cases; Russian in bulk, equal to 30,000; Langkat, 52,800 cases; total 129,900 cases, or an average of 43,300 cases per month.

The following oil cargoes were reported on passage or chartered for the Straits Settlements on March 31, 1894: Sailer *Angeli*, sailed December 28, 1893, from New York, with 40,500 cases (Devoe); sailer *Famenoth*, sailed December 16, 1893, from New York, with 32,967 cases (Devoe).

Kerosene in Bulk in China.—Acting Consul Feindel, of Amoy, under date of January 13, reports as follows relative to kerosene storage at that port:

Two large iron tanks for the storage of kerosene oil in Amoy are in course of construction, and when they are finished I understand that the import of kerosene oil will be in bulk, instead of, as heretofore, in cases of two tins each. It will be an experiment only. Whether

it will prove practicable I hope to be able to report when the system is put into full working order. Special interest is attached to this from the fact that kerosene oil forms the most important article of import from the United States, and American producers should see that they are not behind the Russians in packing or in any new transportation facilities. The Russian oil has found its way into the China coasts, but I believe the American brand still dominates.

Acting Consul Feindel, who transmits the above, is the German consul at Amoy.

American Kerosene in Cochin China.—Under date of February 10, Commercial Agent Schneegans, of Saigon, transmits the following information relative to the consumption of American kerosene in French Cochin China:

American oil is imported into this colony on an extensive scale. During the present year the following ships have arrived here from the United States, bringing 142,053 cases of kerosene: *Ville de Rouen*, 48,433 cases; *Emily F. Whitney*, 46,620 cases; *May L. Stone*, 47,000 cases. The first is a French sailer, and the other two American sailers. The following sailing vessels are on the way to this port with oil: *Edwin Reed*, 44,300 cases; *John McLeod*, 60,700 cases; *Strathisa*, 49,887 cases; *Thos. Dana*, 50,000 cases; total en route, 204,887 cases. The *Edwin Reed* and the *Thos. Dana* are American, and the other two English vessels. The American oil is preferred to the Russian in this market, and higher prices are paid therefor.

Indian Tariff of 1894.—Under date of March 24, Consul-General Polk, of Calcutta, transmitted to the Department a copy of the tariff act passed by the Government of India on the 10th of the same month, which went into effect immediately upon its passage. In his transmittal dispatch, the consul-general wrote as follows:

The act is strictly one for the raising of revenue. This action has been rendered necessary by the increased revenue required to meet the payments on the gold debt due to England, resulting from the fall in the gold value of silver, which is the money of the country. The Government hopes by means of the proceeds of this tax, and by retrenchments in the annual expenditures on internal improvements, to meet the deficit. The most remarkable feature in this act is that it allows manufactures of cotton (about 40 per cent of the total imports) to come in free. This exception in favor of cotton goods has aroused intense, but ineffectual, opposition in all parts of India. In other respects the act seems to have met with general approval. The tax in itself—5 per cent ad valorem or an equivalent specific duty—will have no appreciable effect in diminishing consumption or in arresting importations.

Tariff on Cotton-Seed Oil in Germany.—Ambassador Runyon writes to the Department from Berlin under date of April 17:

Having learned that the Bundesrath has recommended that the tariff on imported cotton-seed oil be raised from 4 marks (the present rate) to 10 marks per 100 kilograms, and that the matter is to come before the Reichstag, I deemed it my duty, in view of the fact that the interests to be affected injuriously by the change, if made, will be almost wholly our interests (seeing that by far the greater part of the cotton-seed oil imported into Germany comes from the United States) to address the foreign office on the subject, which I did to-day, making

proper representations on the subject. In the interview which I had with Baron von Rotenhan, Acting Secretary of State for Foreign Affairs (Baron von Marschall being absent), he informed me that it is probable that because of want of time (the session of the Reichstag being about to end soon) the measure will not be adopted at the present session.

Tariff on Hair of Plants.—Minister W. E. Quinby, at The Hague, informs the Department, April 19, that by ministerial resolution of March 27 it is ordered that hair of plants (so-called *crin végétal*), whether dyed or not, may be imported into the Netherlands free of duty unless it is curled or crimped, in which case it should be classed under the heading of the tariff "hair worked or spun," and be liable to a duty of 5 per cent ad valorem.

Shelled Corn in Venezuela.—Consul Plumacher, of Maracaibo, under date of March 16, informs the Department that shelled corn, more or less broken or ground, imported into Venezuela has been placed in the third tariff class—5 cents per kilogram (2.205 pounds).

New Canadian Tariff.—Mr. John B. Riley, consul-general at Ottawa, has sent the Department a printed copy of the new "customs act," which went into effect March 27, 1894.

Business Outlook in the Argentine Republic.—Consul E. L. Baker writes to the Department from Buenos Ayres, under date of March 24, concerning the political situation and the business outlook in the Argentine Republic as follows:

In my report of the 3d of October last, I announced the complete defeat of the revolutionists in their efforts to get possession of the Government and the restoration of peaceful relations between the contending factions. As a precautionary measure, however, the country since then has been kept strictly under martial law, or "a state of siege," as it is called here. I now have to inform you, however, that last week the President issued an order dissolving the "state of siege," and once more allowing the laws of the country to take their course. Even the great liberal agitator and revolutionist, who was imprisoned after his defeat at Rosario, has been released from confinement without trial and without pledges. There is no doubt that the political situation has greatly improved within the last few months; but commercial and financial affairs continue greatly depressed. The National Government has lately been devoting itself to administration of the laws, reducing expenditures, stimulating the collection of the revenues, burning paper money, etc.

Mr. Baker thinks there is still cause for apprehension as to political and business conditions.

Crop Prospects in Belgium.—Consul Nicholas Smith writes from Liege, Belgium, May 1:

On the 1st of May, 1893, the province of Liege was thought to be suffering from drought, and pessimists of all classes were filled with the fear of famine, but when autumn came the harvest was found to be up to the average, and the people fared as well as usual. This season, however, from the hour of planting until now, nothing has been left for the farmer to cavil at. The grain stands thickly and is of a most vigorous growth, the rye being already in bloom. In the orchards, apple, pear, and cherry trees are studded with fruit to the tips of their limbs. Early vegetables were never finer, and those growing never more promising. In this province there is no adjusting of crops to the external market. Year after year the ratio of agricultural products to each other remains the same. Everything that is grown, with the exception of fruit and a few potatoes, is consumed at home, and when the province has done its best it can feed only about three-sevenths of its own people.

Nova Scotian Trade with Haiti.—Consul Goutier writes to the Department from Cape Haitien, under date of April 21, as follows:

In my report of February 17, I spoke of the Pickford & Black's steamship line, running from Halifax, Nova Scotia, to the West Indies, and of their intention to touch at some of the Haitian ports. Notwithstanding we are in the dull season, they have commenced their service, the British steamer *Beta* arriving here from Halifax on the 12th instant. They intend to have their steamers touch at the principal ports as soon as the coffee crop commences; but there is the question of credit which must be encountered and settled. Are our British neighbors willing to accord such extensive credit to the Haitians as our people are wont to grant them? That is the question upon which the ultimate success or failure of the line depends.

Haiti's Exportation of Logwood.—In the CONSULAR REPORTS for March (No. 162), the heading to the table on page 439, "Haiti's exportation of logwood for ten years" should read "Exportation of logwood from Cape Haitien for ten years," the figures in the table representing the exports from that port alone. Consul Goutier, in making the correction (April 2), writes as follows:

I greatly regret the error, as the report, having been published, may be misleading to many, and I most respectfully request the Department to accept my sincere regret for the oversight.

Cattle Disease in Haiti—Under date of April 20, Consul Goutier, of Cape Haitien, reports that the cases of murrain mentioned in a former report were of a mild form, as there had been very little contagion in his consulate and no cause for alarm existed.

Spanish Trade.—Under date of February 19 Consul Bowen, of Barcelona, transmits the following statistics of the foreign trade of Spain:

Year.	Imports.	Exports.
1891	$174,766,700	$160,762,945
1892	150,344,719	132,158,582
1893	136,964,995	125,326,206

The number of ships entered and cleared at Spanish ports was as follows:

Year.	Entered.	Cleared.
1891	19,332	18,189
1892	17,342	16,451
1893	16,199	16,089

Exports of Cuban Sugar.—According to statistics transmitted by Consul-General Williams, of Havana, and compiled by one of the leading brokers of that city, the exports of sugar from Cuba during the quarter ending March 31, 1894, were:

Whither exported.	Quantity.	Per cent.
	Tons.	
United States	387,862	96.34
Canada	2,489	0.62
Spain	8,414	2.09
Great Britain	3,821	0.95
Total	402,586	100

Premium for Caramel.—Vice-Consul Spaight, of Demerara, under date of March 31, transmits to the Department the following resolution, emanating from a meeting, held on Thursday, March 8, 1894, of the Royal Agricultural and Commercial Society of British Guiana:

That the sum of $200 be paid from the funds of the society, on the award of its agricultural committee, to such person or persons as shall, by the 30th of September next, inform this society of some improved way of producing caramel—combined with its economical manufacture—for coloring rum for market and producing the least degree of obscuration.

In accordance with the above resolution, Thomas Daly, honorary secretary, invites communications, to be addressed to him not later than the 30th of September next.

Pig Iron in Germany.—Commercial Agent Smith, of Mayence, on April 10, reported to the Department that, according to the statistics published by the German Iron and Steel Manufacturers' Union, the pig iron pro-

duced in Germany in 1893 amounted to 4,986,035 tons, being the largest quantity ever produced in any single year, and 48,542 tons greater than in 1892. The imports of pig iron into Germany in 1893 amounted to 361,288 tons, an increase of 11,468 tons over the imports of 1892. The exports of pig iron amounted to 1,688,221 tons, against 1,574,486 tons in 1892. The home consumption was, therefore, 3,659,100 tons, or 53,725 tons less than the consumption in 1892.

Mexican Dollars in the Philippine Islands.—The consular agent at Iloilo reports that the Government Gazette, February 2, 1894, publishes a decree to the effect that, upon arrival at a Philippine port, captains must declare what amount of foreign silver coin or Spanish coin bearing Chinese marks their vessels have aboard. Failing such declaration, any silver coin answering the above description will, if found, be confiscated and turned over to the mint authorities for coinage, and the equivalent of its value paid to the denouncers, finders, and customs authorities in prescribed proportions. The evident intention of this decree is to prevent the surreptitious introduction into these islands of the Mexican dollar, which, if of date previous to 1878, circulates locally as a Spanish coin.

Bills of Health for Colombian Ports.—Vice-Consul Pellet, of Barranquilla, under date of February 8, reports as follows:

> On yesterday I received a communication from the prefect of this province stating that, after the 11th day of March next, all vessels from foreign ports must present bills of health from the Colombian consuls at the respective ports of departure.

This was given to the press on its receipt by the Department.

Consular Reports Transmitted to Other Departments.—The following reports were referred during the month of May to other departments for publication or for proper action thereon:

Consular officer reporting.	Date.	Subject.	Department to which referred.
F. C. Penfield, Cairo	Apr. 13, 1894	Egyptian lentils	Department of Agriculture.
E. Schneegans, Saigon	Mar. 10, 1894	Rice market of Saigon	Do.
E. Germain, Zurich	Apr. 13, 1894	Seed potatoes	Do.
S. Goutier, Cape Haitien	Apr. 20, 1894	Sickness among cattle	Do.
R. S. Chilton, Goderich	Apr. 30, 1894	Crops in Ontario	Do.
E. Schneegans, Saigon	Mar. 24, 1894	Rice market of Saigon	Do.
W. H. Edwards, Berlin	Apr. 19, 1894	Experiments with peanut meal for German army.	Do.
P. A. Collins, London	May 2, 1894	Silver depreciation and British trade.	Treasury Department.
E. Germain, Zurich	Apr. 10, 1894	Forage outlook in Switzerland.	Department of Agriculture.

EXTENSION OF MARKETS

FOR

AMERICAN FLOUR.

CIRCULAR.

On December 5, 1893, the following circular was addressed by the Department to all consular officers of the United States:

You are hereby requested to prepare for publication reports upon "The Extension of Markets for American Wheat Flour."

The following interrogatories cover the principal points upon which information is desired:

(1) What is the standard of living in your district? Are the people ready to eat American flour?

(2) What quality of flour is most used?

(3) What quantity of American wheat flour was imported into your district in the year ending June 30, 1891?

(4) What quantity in the year ending June 30, 1892?

(5) What quantity in the year ending June 30, 1893?

(6) What quantity of American wheat each year during the same period?

(7) What quantity of wheat flour from other countries during the same period?

(8) What quantity of wheat from other countries during the same period?

(9) What is the import duty on American wheat flour?

(10) What is the import duty on American wheat?

(11) What is the import duty on wheat flour from other countries?

(12) What is the import duty on wheat from other countries?

(13) What are the facilities for monetary exchange?

(14) What are the facilities for shipping from the United States to your port?

(15) If there are any obstacles in the way of the extension of trade in American flour, what are they?

(16) What, in your opinion, are the prospects for doing a more extensive business in American flour in the country in which you represent the United States?

In answer to questions 3, 4, 5, 6, 7, and 8 consular officers at seaports will furnish official statistics, others will furnish estimates.

Questions 9, 10, 11, and 12 are to be answered only by the consul-general in each country.

FRANCE.*

ROUBAIX.

STANDARD OF LIVING.

The standard of living in this consular district will compare favorably with that of other parts of France, but is considerably lower than that which prevails in the United States, if the basis of comparison be the middle and working classes, who, as far as the consumption of flour and its products is concerned, form, by far, the most important part of the population. If the standard of living be indicated by 10 in the United States, it would probably be near the truth to indicate it by 7 in France. "Standard of living" is used here simply in relation to the consumption and quality of food and clothing, wages, and hours of labor. The family budgets herewith following were secured with the object of affording some insight into this question. An examination of them will show that the proportion of 7 to 10 is not far out of the way, if used to indicate the relation which the standard of living in France bears to that in the United States.

Budget No. 1.—Family consisting of five—father, mother, one boy 15 years old, and two girls of 12 and 10 years. Occupation of father, engineer; wages, $1 per day; working days in the year, 365; working hours per day, twelve. The son is an errand boy in a store, and receives $5 per month. This family occupies a house consisting of four rooms and a cellar, situated on a narrow court, but with plenty of light. The interior of the house was clean and neat. The breakfast consisted of coffee and bread; dinner at noon, of soup, meat, vegetables, and beer; supper, of buttermilk and bread and butter.

The annual income and expenses of the family are as follows: Income—wages of father, $365; wages of son, $60; total, $425; expenditures—meat, $127; vegetables, $37; bread, $36; beer, $70; fires, $13; clothing, $30; furniture, $8; medicine, $6; amusements, $5; rent, $60; other expenses, $31; total, $417. This shows an excess of income of $8.

Budget No. 2.—Family of five, consisting of father aged 40, mother aged 38, and three young children. Occupation of father, warehouseman; wages, $1.10 per day; works 305 days per year, and eleven hours per day.

*This series of reports was begun in the February number (161, p. 395) and continued in the March number (162, p. 491), in the April number (163, p. 709), and in the May number (164, p. 83).

This family occupies a house of four rooms, on a court. The wife was evidently not a good housekeeper, the rooms being slovenly and the children dirty. Their breakfast consisted of bread, cheese, and beer; dinner, of meat, beef or mutton, bread, potatoes, and beer; supper, of coffee, bread, and butter.

The annual income and outlay of this family are as follows: Income—wages of father per year, $335.50; expenditures—rent, $60; meat, $88; bread, $40; vegetables, $40; beer, $18; clothing, $25; church, $1.55; medicine, $2; fires, $12; amusements, $10; other expenses, $30; total, $326.55. This shows an excess of income of $8.95.

Budget No. 3.—Family of eight; father aged 39, mother aged 38, and six children, the oldest being 8 years. Occupation of father, conductor on a street railway; wages, 80 cents per day, working 360 days a year and 12 hours per day. This family occupies a house of three rooms in a suburban village of Roubaix. It was evidently the home of misery, for, although the mother was neat and the children clean, they had the appearance of being insufficiently fed and clothed. I was informed that the husband spent his earnings in the cafés, which accounts for the large item for amusements. Much of their clothing was given to them. Their breakfast consisted of coffee, bread, and butter; dinner, of meat (for the husband), soup, bread, and beer; supper, of soup, made of buttermilk, bread, and butter.

The annual income and outlay of this family are as follows: Income—wages of father per year, $288; expenditures—rent, $38.40; meat, $36; vegetables, $60; bread, $105; beer, $20; fires, $25; clothing, $10; medicine, $10; amusements, $20; total, $324.40. This shows an excess of expenditures over income of $36.40.

Budget No. 4.—Family of eight, consisting of father aged 55, mother aged 55, three sons aged 26, 23, and 18 years, and three daughters aged 28, 25, and 16 years. Occupation of father, sons, and daughters, weavers. The father earns 80 cents per day, the sons each 70 cents, and the daughters each 30 cents per day, eleven hours constituting a day's work. This family lived comfortably in a house of five rooms on a respectable street in a small town. There were many of the comforts of home, and everything was clean. The mother cared for the house. Their meals were abundant, and for each one half a liter of beer was served with every meal.

The annual income and outlay of this family was as follows: Income—father (290 days at 80 cents), $232. three sons (290 days at 70 cents each), $609; three daughters (290 days at 30 cents each), $261; total, $1,102; outlay—rent, $70; meat, $140; vegetables, $20; bread, $100; coffee, etc., $40; beer, $80; wine, $3[illegible]; fires, $30; clothing, $300; furniture, $30; medicine, $30; amusements, $40; taxes, $9; other expenses, $50; total, $969. This shows an excess of income over outlay of $133.

Budget No. 5.—Family of three, consisting of father, mother, and son, the two former aged, respectively, 45 and 42 years, and the son 16 years. Occupation of father, clerk in men's furnishing goods store; salary, $600 per

year; hours of work per day, eight. This family inhabited a comfortable house in Lille. The son was in a boarding school. Their meals consisted of chocolate, bread, and butter for breakfast; soup, meat, vegetables, and beer for dinner; and cold meat, cheese, bread, and beer for supper.

The annual income and outlay of this family were as follows: Income—salary of father, $600; outlay—rent, $120; beef, $32; other meat, $68; vegetables, $36; bread, $36; coffee, eggs, etc., $50; beer, $38; wine, etc., $12; fuel, $12; clothing, $50; furniture, $30; medicine, $10; education, $40; amusements, $20; taxes, $16; miscellaneous, $30; total, $600.

Budget No. 6.—Family of four, consisting of husband, wife, husband's mother, and wife's sister. Occupation of husband, waiter in hotel; wife's occupation, domestic; the sister, a factory employé. The husband earns in gratuities, etc., with his meals, $260 per year, and works twelve hours a day, Sundays included; the sister earns 40 cents a day for 310 days; the wife earns about $16 per month, her meals not being included. This family, by the showing of the schedule, are in fortunate circumstances, for, although their income was small, they managed to save more than one-half thereof. Their annual outlay is small, because the husband takes no meals at home and the wife has a good deal given to her where she works. The mother takes care of the house. The house is small, consisting of four rooms, situated on a narrow court. The husband and wife are young, newly married, and without children. Their ambition is to save enough to open a small café.

The annual income and outlay of this family are as follows: Income—husband, $260; wife, $192; sister, $124; total, $576; outlay—rent, $43.20; meat, $15; vegetables, $30; bread, $38; coffee, etc., $20; beer, $18; fuel, $20; clothing, $40; furniture, $5; medicine, $5; church, 50 cents; amusements, $15; taxes, 50 cents; miscellaneous, $20; total, $270.20. This shows an excess of income over outlay of $305.80.

Budget No. 7.—Family of five, consisting of father aged 33, mother aged 30, and three children, the oldest 7 years old. Occupation of father, carpenter; wages, 85 cents per day of eleven hours. He averages 300 days per year. This family occupies a house of four rooms, with a small garret, in a very poor quarter of the town. The husband is a socialist, and quite an intelligent man, well posted upon the political topics of the day. Their meals consist of coffee, bread, and butter for breakfast; meat or soup, vegetables, bread, and beer for dinner; and potatoes or cheese and bread and butter and beer for supper.

The annual income and outlay of this family are as follows: Income—wages of father, $255; outlay—rent, $40; meat, $40; vegetables, $30; bread, $75; beer, $25; fuel, $15; clothing, $20; miscellaneous, $7; total, $252. This shows an excess of income of $3.

Many other schedules were secured, embracing twenty or more occupations, the foregoing being selected as containing elements of interest, and as representing average conditions. It will be noted that the item of rent in most cases is quite low. It is even still lower where the family rents a house

in the country. I have seen houses with small gardens, etc., which rent for $30 per year, and some even for $20. The hours of labor are rather longer than in the United States, and, all things considered, their standard of living, in its physical aspect, is considerably lower than with us.

IMPORTS OF FLOUR AND WHEAT.

The imports of flour and wheat at the port of Dunkirk (the port for Roubaix) during the calendar years 1891, 1892, and 1893 were:

From—	1891.	1892.	1893.
Flour.	*Pounds.*	*Pounds.*	*Pounds.*
United States	1,916,900	.....	.....
Germany	386,100	233,800	.....
Argentine Republic	208,340	.....	.....
Total	2,510,640	233,800	.....
Wheat.			
United States	720,595,040	442,397,197	1,025,860,000
Russia	24,648,140	.....	63,034,400
England	3,732,740	1,726,380	8,461,200
Roumania	32,831,700	37,051,823	87,601,800
Turkey	12,869,340	.....	39,404,200
Egypt	2,286,460	1,103,234	21,183,800
India	241,050,620	96,613,215	501,316,200
Australia	54,507,740	1,581,690	165,634,600
Argentine Republic	24,372,920	11,759,383	167,320,800
Algeria	7,000,840	873,400	1,375,000
Total	1,123,895,540	593,106,322	2,381,192,000
Total in bushels	18,731,592½	9,885,106	39,686,533⅓

EXCHANGE AND SHIPPING FACILITIES.

The facilities for monetary exchange in this district are good, the principal banking institutions having correspondents in the United States or Paris.

There is no regular line of steamers between the port of Dunkirk and the United States, though "tramp" steamers sometimes unload cargoes from United States ports. The wheat landed at that port is brought in sailing vessels. This district is connected by rail with all other parts of France, and hence the facilities for bringing merchandise here are as perfect as could be desired.

OBSTACLES TO TRADE.

The question of a market for American flour in France is one of price and quality. It will generally be conceded, I believe, that French flour is second to none, equal grades being compared. From the earliest times French bread has had a reputation which extended far beyond the limits of the country. It is to-day imitated the world over, and generally with indifferent success. This fact, aside from the skill and experience necessary in making it, would seem to indicate a superiority in the flour. But, granting an equality on the part of flours seeking a market in France, the questions of

cost of production and landing it in the country still remain to be eliminated. In order to place before American exporters and millers some of the facts pertaining to these questions, I have interviewed millers in many parts of this consular district with a view to obtaining information as to the cost of producing flour of various grades. As the replies were generally uniform, not much doubt can exist as to their accuracy.

The highest and lowest market prices paid for wheat are $1.86 and $1.66 per 100 pounds. In converting 100 pounds of wheat of first quality into flour the estimates as to the product vary as follows: Fifty-five to 60 per cent of flour of first quality, 12 to 17 per cent of flour of second quality, and 21 to 28 per cent of bran and refuse. The market price for the higher grades of flour vary from $2.28 to $2.54 per 100 pounds, that of inferior grades varying from $1.93 to $2.28, and bran averages $1.14. Taking the average of these results, the product of a grind of 100 pounds of grain would be worth $1.97, the finished products having a value of 21 cents more than the raw material.

From 100 pounds of wheat at $1.76 there would result from the grind 57½ pounds of flour of first quality, 14½ pounds of flour of second quality, and 24½ pounds of bran, worth, respectively, $2.41, $2.10, and $1.14 per 100 pounds, or a total value of $1.97, as above stated.

DUTIES.

The duty upon flour of the higher grades is $1.40 per 100 pounds. Deducting the duty from the average price of these flours ($2.41 per 100 pounds), the figure at which the exporter must land his flour in this country stands at $1.01 per 100 pounds. From this figure should also be deducted the cost of transportation and other expenses. After making these deductions the net price to be realized by the American exporter would, I believe, be considerably below the cost of production, and it is therefore my opinion that under the present duties there is no possibility of an extension of a market for American flour in France.

This conclusion seems to be borne out by the insignificance of the importations of flour under the régime of the old duties, which were 35 cents less per 100 pounds upon the higher grades of flour than the existing duties. For the year 1892 the importations from all sources amounted to only 384,162 quintals, valued at $2,254,175, the importations of wheat for the same year being 17,255,819 quintals, valued at $73,901,081. The exportations of flour for the same period were $4,646,256, an amount more than double the importations. The recent increase of duties upon the higher grades of flour is double the increase upon wheat. Millers, therefore, have that much more protection than they had before, which increases the difficulties of would-be exporters of flour to this country.

Inhabitants of cities and villages in France purchase their bread, almost without exception, of the bakers. The rural population, however, have their wheat ground at the neighboring mill, generally a windmill, and make their

bread at home. I have often eaten this bread, and, although wholesome, it is inferior to baker's bread.

Windmills exist everywhere in this part of France, and in construction vary from the most primitive forms built of wood to those of masonry of modern forms. There is a small economy for the country people in making their bread, which is sufficient reason for their so doing, but there is another reason which influences a part of them. Many follow occupations in the towns, and rent a small house with a garden from a farmer or proprietor, agreeing during harvest time to give a certain number of days' work to the farmer, who pays him with grain. After the harvest is finished the renters upon the farm, in consideration of various services rendered, quite commonly have the privilege of gathering from the fields the heads of grain which the harvesters have neglected. One often sees whole families out in the fields gathering up the stray heads, their labor being rewarded by a sack or two of grain, which they take to the neighboring mill to be ground, and thus they obtain a supply of flour at a minimum outlay.

Inquiries made of leading grocers and bakers establish the fact that American flour is unknown in France outside of Paris.

STEPHEN H. ANGELL,
Commercial Agent.

ROUBAIX, *April 20, 1894.*

NETHERLANDS.

AMSTERDAM.

STANDARD OF LIVING.

The standard of living in this district is comparatively fair. The principal articles of food in the Netherlands are wheat, rye, and potatoes. American flour is well liked, and large quantities are annually imported and consumed.

QUALITY OF FLOUR USED.

The bakers' grade is the quality of flour most used.

IMPORTS OF FLOUR AND WHEAT.

The following table shows the quantity of wheat and wheat flour imported into Amsterdam during the years ending June 30, 1891, 1892, and 1893:

Year.	Wheat.	Flour.
American:	*Pounds.*	*Pounds.*
1891	16,426,960	10,961,834
1892	41,831,523	23,037,608
1893	28,537,520	41,624,842
Total	86,796,003	75,624,284
All other:		
1891	83,280,269	17,514,013
1892	47,180,867	8,362,527
1893	91,168,114	13,857,228
Total	221,629,250	39,733,768
Grand total	308,425,253	115,358,052

DUTIES.

Wheat and wheat flour from all countries are admitted free of duty into the Netherlands.

EXCHANGE AND SHIPPING FACILITIES.

As to monetary exchange the Amsterdamsche Bank, Twentsche Bankvereeniging, Lippmann, Rosenthal & Co., Adolph Boisservain & Co., and other similar banks and banking houses of Amsterdam afford excellent facilities in this line.

The Red Star line to Antwerp, the Netherlands-American Steam Navigation Company to Rotterdam and Amsterdam, and the North American

Transport line to Rotterdam afford the chief facilities for shipment from the United States to this port.

OBSTACLES TO TRADE.

Merchants here complain that the uncertainty of the time of transit is an obstacle in the way of the extension of the trade in American flour. For instance, as the local merchants claim, a shipment of flour to A, of Amsterdam, reaching the dock in New York (or other American port) is warehoused if an ocean steamer is not ready for loading; later shipments to other parties arriving, say, in New York by the time a steamer is ready for cargo are immediately placed on board, while the flour in the warehouse consigned to A may be left there indefinitely.

TRADE OUTLOOK.

If the time of ocean transit is rendered more certain, with due allowance, of course, for the prevailing financial depression, it is safe to say that the prospects of doing a more extensive business in American flour in this country are good.

EDWARD DOWNES,
Consul.

AMSTERDAM, *April 21, 1894.*

SPAIN.

MADRID.

Spanish wheat flour is exclusively used in this district. The high railway freight charges are obstacles in the way of the importation of foreign flour or wheat.

The great depreciation of Spanish currency would seem to render importation still more difficult, if not impossible. The peseta has fallen from 19.3 cents (its par value) to about 15 cents.

According to the data furnished by the officials of this city, the total quantity of wheat and wheat flour consumed in Madrid during the years 1889 to 1893, inclusive, was as follows: Wheat, 2,488,965 bushels; flour, 97,703,550 pounds.

I. FIGUEROA HERNANDEZ,
Vice-Consul.

MADRID, *March 30, 1894.*

UNITED KINGDOM.

MALTA.

STANDARD OF LIVING.

The standard of living in this island may be considered medium. Even the wealthiest Maltese can not be said to live "generously" in the American sense. The bulk of the population consumes a large quantity of bread and wheaten products, such as macaroni, etc., the Maltese being supposed, by some observers, to make a proportionally much larger use of macaroni than the Neapolitans. Macaroni, vermicelli, etc., are manufactured locally, and are also imported.

As a matter of fact, the people here have eaten and now eat American flour. It is very common to see flour sacks bearing American brands being drayed, or such empty sacks being put to various uses, but owing to the lack of statistics, official or otherwise, in the matter, it is very difficult to say or even guess what proportion of the flour supply of this island is received directly or indirectly from the United States.

QUALITY OF FLOUR USED.

The quality of flour most used is wheaten—one grade for bread-making and finer descriptions for pastry, cakes, etc.

IMPORTS OF FLOUR AND WHEAT.

No statistics regarding the imports of American flour and wheat are available. As goods are received by indirect routes, the ports of transshipment are credited with articles of American origin.

The following were the total importations from all sources during the years ending June 30, 1891, 1892, and 1893.

Year.	Wheat.		Flour, macaroni, etc.	
	Imported.	Exported.	Imported.	Exported.
	Bushels.	*Bushels.*	*Pounds.*	*Pounds.*
1891	976,840	10,488	1,887,375	818,650
1892	1,067,832	38,296	2,248,400	744,100
1893	1,015,664	113,040	5,651,100	566,300

The great difference observable in the last year (1893), as regards the importation of flour, macaroni, etc., is due to the high prices at which stocks of wheat were held in the island in 1893, which enabled the importers to compete successfully with the local millers.

DUTIES.

The import duty on flour is 6*s*. per cantaro ($1.46 per 175 pounds).

The import duty on wheat is 10*s*. per quarter, equal to 30 cents per bushel.

EXCHANGE AND SHIPPING FACILITIES.

There is no direct monetary exchange with any of the American centers. In any operations that take place a credit on London or Paris is opened.

There are various ways of shipping goods from New York to Malta, principally via Liverpool; but there is no direct communication. When direct and frequent steamship communication between American and Mediterranean ports, touching at Malta, is established, American wheat flour will not only find a ready sale here, but will at once dominate the market.

OBSTACLES TO TRADE.

The absence of any regular direct communication between American ports and this island and the consequently expensive and lengthy (or tardy) manner in which shipments have to be made at present, are obstacles to the extension of American trade in general with Malta and ports further east, and of the trade in flour in particular. There are now several importers of flour here, and the individual shipments have necessarily become small. Owing to the length of time a shipment from the United States would occupy in reaching this port by present routes, and the constant fluctuations in the product, importers appear to find it more to their advantage to receive their supplies from England, whence a shipment can reach Malta in about ten days from ordering.

Large parcels of flour are occasionally received here from Ibrail, in the Black Sea, a week's voyage to Malta. A shipment of this flour, which appears to meet with favor, has just been received and sold at $1.75 per 100 pounds delivered from the wharf.

TRADE OUTLOOK.

I am of opinion that the prospects for doing a more extensive business in American flour are excellent, provided direct communication—such as I have very briefly outlined in this dispatch, and more fully and urgently advocated in former dispatches to the Department—is established.

The windmills that used to grind all the flour for the inhabitants are now obsolete and the steam mills that succeeded them are few in number and of no commercial importance.

This island has 175,000 inhabitants, and, in addition, a very large garrison of British troops. It is the headquarters of the British Mediterranean fleet, and it is the largest coaling and provisioning port in this sea.

JOHN WORTHINGTON,
Consul.

MALTA, *April 14, 1894.*

SALVADOR.

STANDARD OF LIVING.

The standard of living in the Republic of Salvador is low among the masses. They eat "frijoles" (black beans) and "tortillas" (corn cakes), which, with coffee in the morning and occasionally a little cheese, form their main diet. The better classes add meats, according to their means, but all classes of natives prefer tortillas to bread. Flour is used chiefly in sweetbreads and cakes (*pan dulce*).

A first-class quality of flour is most used.

IMPORTS OF FLOUR AND WHEAT.

The quantity of wheat flour imported into the Republic of Salvador during the years ending June 30, 1891, 1892, and 1893, amounted to 4,903,937 kilograms, 5,556,472 kilograms, and 4,942,396 kilograms, respectively.

In the second half of the year ending June 30, 1893, 992 kilograms of wheat flour were imported from China. The Government, doubting the declaration, caused it to be investigated, with the result that it was fully confirmed.

No wheat was imported during the years named.

DUTIES.

The import duty on wheat flour is 4 cents per kilogram and on wheat 2 cents per kilogram.

EXCHANGE AND SHIPPING FACILITIES.

The facilities for monetary exchange, through the banks, are good during the coffee season, which begins in January and ends in May, because Salvador prohibits the importation of silver, which makes the rate of exchange low in comparison with that of the other Central American countries. Exchange in Salvador to-day is 66 on New York, while in Guatemala it is 100, and still more in the other states. . This advantage is probably only temporary and is limited to the coffee season, after which the rate will doubtless go up. A favorite means of exchange, and one calculated to save commission at both ends, is in merchandise. For example, to pay for a consignment of flour the merchant in Salvador will ship a consignment of coffee, etc., to the United States.

The facilities for shipping from the United States to Salvador are via the Pacific Mail Steamship Company and by sailing vessels. The North American Navigation Company, which carried freight from San Francisco, has practically ceased to exist, and consequently freight rates are going up.

OBSTACLES TO TRADE.

The only obstacle in the way of the extension of trade in American flour is the preference of the natives for their "tortillas." Only time can remedy that. A quintal of corn sells here for 4.50 pesos and a quintal of flour for 8 pesos ($2.09 and $3.72 American), but even when, as during last year, corn failed and sold higher than flour, the demand for the latter was not correspondingly greater.

TRADE OUTLOOK.

Just now foreigners are very active in Salvador. An English syndicate has secured a concession for a railroad, and an American company has a proposition pending for another railroad. Another American firm is trying to build a bridge across the Lempa River. Still another is negotiating for certain mining properties. All these people demand wheat bread, and will thus acquaint the natives with the use of flour. I am assured that the sale of wheat flour since last year is increasing. No other means for extending the business among this primitive people are possible.

ALEXANDER L. POLLOCK,
Consul.

SAN SALVADOR, *April 7, 1894.*

No. 165——8.

BRAZIL.

PARA.

STANDARD OF LIVING.

The standard of living among the upper and middle classes is very good, but extremely low among the poorer people.

QUALITY OF FLOUR USED.

Nearly all of the flour used here is imported from the United States. None but the best grades are consumed in this market. Wheat flour is only used where bakeries exist. The people rarely have flour in their homes, and substitute "farinha" when bakers' bread can not be had; especially is this true in the rural districts.

IMPORTS OF WHEAT FLOUR.

The quantities of flour imported from the United States during the years 1891, 1892, and 1893 were 12,675 barrels, 45,781 barrels, and 23,331 barrels, respectively. Much of the imports of 1892 were held over, which accounts for the smaller imports of 1893.

The importation of flour from other countries is very insignificant, amounting to only 8 barrels in 1892, which, I am told, is a fair estimate for the imports in 1891 and 1893 also.

The demand is increasing steadily, and will, I feel certain, keep pace with a fast-growing population.

EXCHANGE AND SHIPPING FACILITIES.

The facilities are good for monetary exchange, but as we have no American banking houses here nearly all exchange is sold on London, better terms being given on London than can be had on New York.

The shipping facilities from the United States to this place are ample and good. We have from two to three steamers, mostly English steamers, and one American sailing ship per month.

OBSTACLES TO TRADE.

There are no obstacles in the way of the extension of our flour trade. The admission of our flour free of duty, while all other flours are forced to pay duty, works largely in our favor. That, added to our great flour resources, will enable us to easily hold the flour trade in this part of the world.

GEO. G. MATHEWS, JR.,

PARA, *April 18, 1894.* *Consul.*

PERNAMBUCO.

STANDARD OF LIVING.

Among the upper classes the standard of living is quite as high as among similar classes in cities of the same size in the United States, so far as I can learn. In the smaller towns and villages, as well as in the rural districts of the State, the upper classes also live well, including the agricultural class. A large quantity of flour is also used by the poorer classes of people, but their principal cereal, or what may be substituted for a cereal, is "farinha." It is made from a root, which, after six to eight months growth, is dug up, dried, and ground, and then used either uncooked, roasted, or boiled. It is very largely used by the poorer classes, and also may be found upon the tables of the upper classes and in hotels and restaurants. In the uncooked condition this flour, if it may be called such, is known simply as "farinha;" roasted or thoroughly heated, it is called "farofa;" and when boiled, it is known as "pirão." In addition to this, so largely used by the poorer classes, and which seems to be a necessary part of their daily food, the fruits of the country, such as bananas, "jacas," breadfruit, and various other kinds are extensively eaten.

QUALITY OF FLOUR USED.

The quality imported from the United States is chiefly the Baltimore brands, while that imported from Europe is known as the Trieste flour.

IMPORTS OF FLOUR AND WHEAT.

The imports of American flour amounted to 127,584, 110,754, 146,427, and 139,806 barrels in 1890, 1891, 1892, and 1893, respectively. During the same years the imports of flour from Trieste amounted to 85,202, 69,422, 38,950, and 64,948 barrels, respectively.

During the years above mentioned there was no wheat imported into this district, nor was there any wheat flour other than that from the United States and Trieste.

DUTIES.

Since the reciprocity treaty there is no import duty on American flour or wheat. The import duty on flour from other countries than the United States is 2.09 milreis ($1.14) per barrel weighing 87 kilograms (191.8 pounds).

EXCHANGE AND SHIPPING FACILITIES.

Exchange facilities are, at present, limited to two banks, viz, the Banco de Pernambuco, which is controlled by Brazilian directors, and the London and Brazilian Bank, which is an English bank.

There is no American line of steamers plying between the United States and Brazil. The following lines do the carrying trade, viz: Lamport & Holt, Red Cross, Booth, Prince, and Sloman's. The first four are English lines, and the last flies the German flag.

TRADE OBSTACLES AND OUTLOOK.

In reply to interrogatories 15 and 16 I inclose as answers to those questions and as part of this report the views of Mr. H. F. Hitch, of the house of H. Forster & Co., of this city. This house has been established in Pernambuco for upwards of seventy years. It is the only American importing house. As the principal importation is flour, the views of Mr. Hitch are well worth the attention of our flour manufacturers:

By the terms of the reciprocity treaty American flour is free from duty, while on flour from other countries the duty is 2.09 milreis per barrel. The consumption of American flour in this State has increased, not only with the increase of population, but with the establishment of railways to the interior. Prior to the opening of the railways no flour went to the interior, except in the form of biscuits, which were baked in the city, while now both American and Trieste flour is sold to bakers some hundreds of miles in the interior, being carried in bags on horseback from the terminus of the three railroads. This new system has naturally curtailed the consumption by our local bakers, taking from them their upcountry custom, but such curtailment has been not only made up, but a far greater quantity of flour goes direct to the country bakers.

The extreme cheapness of American flour, together with the advantage of its being free of duty, has, during the two years past, very considerably increased its consumption as compared with Hungarian flour. But, regardless of price, our bakers will have a certain quantity of Hungarian flour, notwithstanding the fact that the best American patent flour, which in Europe sells side by side with Hungarian, can be sold here at about 8 milreis ($4.37) per barrel less. The bakers of this State do not seem to be able to obtain good results from our patent flours; whether through ignorance or by reason of the water or other causes it is impossible to say, so that in spite of the efforts of flour importers, the attempt to substitute high-grade American for Hungarian has met with no success, and the business in American flour here is confined entirely to straight flour, most of which comes from Baltimore. There is certainly a quality in Hungarian flour absent from any American, viz, it will continue perfect in this climate for six to eight months, and even longer, while half that time is sufficient for American to deteriorate seriously, and our patent flour, which is supposed to resemble Hungarian, lasts a still less time, strange to say.

The Hungarian barrel is far superior to that made in the United States, being tight and solid, while the American is, in many cases, very loose and goes to pieces easily. In rolling a barrel of Hungarian flour nothing escapes, while in rolling an American barrel a cloud of flour dust is raised, and it is fortunate if hoops do not come off and the head come out. This is a matter that should have the attention of our millers, who do not seem to realize the hard usage a barrel must have in the handling necessary to its delivery in a Brazilian port.

It is fortunate that flour is not sold here, as in the United States, by weight; if it were there would be a claim on every barrel delivered here. But for the extremely low price in producing countries, which has acted to a great extent as an offset to the rapid decline in the value of the Brazilian currency, no doubt we should have a decreased consumption of flour; but as yet it can be sold here in currency for a price which has often been current when the currency was at par. The one great obstacle to the entire exclusion of Hungarian flour in favor of American is the lack of good workmen in the bakeries, and, in fact, the ignorance of their trade on the part of the bakers in general. Even now there is here and there one who uses only American flour even for family bread, but they are very rare exceptions. Five years ago the importation of American flour was only 10 per cent more than Hungarian flour; in 1893 it was 115 per cent greater. This should be very encouraging to our millers.

DAVID N. BURKE,
Consul.

PERNAMBUCO, *April 10, 1894.*

RIO DE JANEIRO.*

STANDARD OF LIVING.

The standard articles of food in this district are Indian rice and national mandioca flour. People are ready to eat preparations of American flour, which is only consumed, owing to its superior cost, in proportion of 1 pound of flour to 1½ pounds of rice and half a pound of mandioca flour.

QUALITY OF FLOUR USED.

The quality of flour most used is American hard winter wheat flour, and of that principally the grades termed "extras."

IMPORTS OF FLOUR AND WHEAT.

The imports of flour and wheat at Rio de Janeiro during the calendar years 1891, 1892, and 1893 were as follows:

Kinds.	Flour.			Wheat.		
	1891.	1892.	1893.	1891.	1892.	1893.
	Barrels.	*Barrels.*	*Barrels.*	*Bushels.*	*Bushels.*	*Bushels.*
American	290,888	441,892	412,235	204,444	135,452	10,633
Argentine	.....	.....	.....	1,338,290	1,403,640	1,780,027
Austrian	8,139	4,501	3,628	.....	.....	231
Australian	.....	.....	.....	9,990	.....	.....
River Plate ports	11,533	44,211	119,848	.....	.....	.....
All other	.....	.....	.....	.....	404	.....
Total	310,560	490,604	535,711	1,552,724	1,539,496	1,790,893

DUTIES.

American wheat and wheat flour are imported free of duty.

The import duty on wheat flour from other countries is 24 reis (at the present rate of exchange, about half a cent in United States gold) per kilogram of 2.205 pounds.

The import duty on wheat from countries other than the United States is 5 per cent ad valorem.

EXCHANGE FACILITIES.

The facilities for monetary exchange are those specially offered by three English banks and one German bank, with branches in this country, and one Brazilian bank, which buy and sell the local currency at a rate regulated according to the offer and demand of commercial or bank bills, most of which are payable in London, and which rate is generally termed "ex-

*Vice-Consul-General Lewis writes (April 13, 1894) that this report was prepared, at his request, by Emil Garai, esq., an American citizen resident in Rio de Janeiro, who makes the flour business a specialty.

change." This "exchange," regulated by these banks, is of a very fluctuating nature, as the following table of extremes of rates on London will show:

Rates of exchange on London.

Year.	Per milreis.	
	Highest.	Lowest.
	Pence.	*Pence.*
1856	28⅛	27
1857	28	23⅛
1858	27	24
1859	27	23⅛
1860	27⅛	24⅛
1861	26⅝	24⅛
1862	27⅛	24⅝
1863	27⅛	26⅛
1864	27⅝	25⅛
1865	27⅛	22⅝
1866	26	22
1867	24⅝	19⅝
1868	20	14
1869	20	18
1870	24⅝	19⅝
1871	25⅝	24⅝
1872	26⅝	24⅛
1873	27⅛	25⅛
1874	26⅝	24⅝
1875	28⅛	26⅛
1876	27⅛	23⅛
1877	25⅝	23
1878	24⅝	21
1879	23⅝	19⅛
1880	24	19⅞
1881	23⅛	20 1/16
1882	22	20⅛
1883	22⅛	21
1884	22⅛	19⅝
1885	19⅛	17⅝
1886	22⅝	17⅝
1887	23⅛	21⅛
1888	27 7/16	22⅛
1889	28⅛	26⅛
1890	26⅛	20⅝
1891	21⅝	20⅛
1892	16⅛	10⅛
1893	13⅛	10 7/16
1894 (February 6)	9⅛	.....

The following statistical figures demonstrating the import and export trade through the custom-house of Rio de Janeiro with some of the countries doing the most business with this port for the two years commencing January 1, 1890, and ending December 31, 1891, will not be uninteresting in connection with the question of the facilities for monetary exchange, although not exactly answering the interrogatory made. They will, however, prove statements intended to be made here, which, although not solely affecting the American wheat flour and wheat export, still include the same, while bearing upon the whole commerce of the United States with Brazil in gen-

eral, and Rio de Janeiro in particular. It is to be regretted that no newer complete information can be given of the commercial movement of the port of Rio de Janeiro, nor any official statistics upon the import and export of the other eighteen Brazilian ports, most of which are, independently of each other, in direct relations with the world's markets. The amounts given are in United States gold dollars (exclusive of gold in specie), converted at the average rates of exchange of the respective years, viz, 22⅝*d.* for 1890 and 16.33*d.* for 1891, and at $4.80 (United States gold) per £1.

Trade of Rio de Janeiro with the principal countries.

Countries.	Exports.	Imports.	Total.
United States:			
1890	$33,318,216	$6,897,420	$40,215,636
1891	30,156,868	5,517,429	35,674,297
Total	63,475,084	12,414,849	75,889,933
Great Britain:			
1890	2,550,802	20,425,246	22,976,048
1891	2,004,599	17,982,409	19,987,008
Total	4,555,401	38,407,655	42,963,056
France:			
1890	3,164,402	10,319,719	13,484,121
1891	4,489,820	9,408,616	13,898,436
Total	7,654,222	19,728,335	27,382,557
Germany:			
1890	5,873,885	8,030,153	13,904,038
1891	5,564,899	6,933,979	12,498,878
Total	11,438,784	14,964,132	26,402,916
Italy:			
1890	646,574	694,091	1,340,665
1891	587,232	618,115	1,205,347
Total	1,233,806	1,312,206	2,546,012
Portugal:			
1890	87,582	3,455,601	3,543,183
1891	32,788	2,092,686	2,125,474
Total	120,370	5,548,287	5,668,657

To show the necessity of deducting from the official totals the movement of gold in specie with the above countries, it is only necessary to state that the exports in 1890 and 1891 amounted to $13,703,392.63 and the imports to $6,090,805.29, of which Great Britain alone figures for $12,310,285.94 in the exports and for $5,635,203.96 in the imports.

By the preceding table of exports and imports it will be seen that not only are the United States doing the largest trade as to value (unfortunately the greater amounts are not imports), but on an average for each of the years 1890 and 1891 they surpass Great Britain to the amount of $16,463,438.09; France, $24,253,688.33; Germany, $24,743,508.40; Italy, $36,671,960.27; and Portugal, $35,110,638.07 (in United States gold).

While it is admitted that these figures, which refer to the port of Rio de Janeiro alone, through which about 2,250,000 inhabitants out of about 14,000,000 for the whole Republic are accommodated in imports and exports, present striking differences compared with the commercial movement with other countries, it is still more remarkable that while England has three banks in Rio de Janeiro, Germany one, Italy one, and Portugal several agencies of Portuguese banks, the United States have none. Taking into consideration that every cent going from this country to the United States or *vice versa* has to pass through the London banks (which, of course, does not occur without paying tribute), amounting to millions in the course of years, these amounts are thus subtracted from the wealth of the United States.

It may be said that a rate of exchange for the American dollar is unknown here. While England sells her manufactures and buys Brazilian produce in sterling, Germany in marks, and France in francs, the United States are forced to sell their manufactures and buy Brazilian produce in sterling, which is indicative of a want of a certain amount of energy on the part of the Americans. There can be no doubt that an American bank, with a head office in New York, is sorely needed here. It would, by careful management, not only find a productive soil to work upon, but would also perform the patriotic task of promoting American commerce, industry, and agriculture.

SHIPPING FACILITIES.

The facilities for shipping merchandise in general from the United States to this port consist of several lines of steamships and sailing vessels. There are no shipping facilities of any kind for wheat flour for the individual miller, and unless he is protected, as it were, by one of about half a dozen mercantile houses who monopolize the Brazilian flour trade and who are alone privileged by these shipping lines to ship flour to this country, he is debarred from selling his product, as the shipping lines will receive no flour for shipment from any individual miller.

OBSTACLES TO TRADE.

To answer the question as to obstacles in the way of the extension of trade in American flour let me deviate, to make the point clear, and speak of American trade generally and then return to the original question.

Brazil is conspicuous for more importers, probably, than any other nation, comparatively speaking. Nearly 90 per cent of the Brazilian dealers with the interior and shopkeepers in the first-class ports are importers, direct or indirect, through local commission houses or through agents of foreign commission houses and manufacturers, the reason for this being that the import duties are very high (being the principal source of revenue for the Government) and the wholesale merchant, counting his profits not only from the cost of the goods, but also from the amount of duties paid in importing direct, not only saves the latter profit, but also the greater part of the former. It is thus that stocks of goods here are smaller, in proportion, than they are

elsewhere, as these merchants only import just enough for their probable requirements for a certain period, first, because the majority of them have only limited capital at their disposal, which will not permit them to accumulate large stocks, and, second, because merchandise of almost any kind will deteriorate quickly on account of the hot and damp climate. It will, therefore, be easily understood that these merchants have to replenish their stocks often and with the least possible delay. The generality of merchandise, however, can not be ordered by cable, there being so many details to be noted. The order, therefore, has to be transmitted by letter, and when the merchant makes an order he wants his goods, for the reasons explained, as quickly as possible. He will make his selections from catalogues or samples in his possession or at the local sample rooms, according to qualities and prices, and finally ask when he can have the goods. When it is a question of English or continental merchandise, he will receive the answer that there will be an outgoing mail in one to five days, the letter will arrive in Europe in seventeen to twenty days, a month will be required for the execution of the order, and a month for the passage of the steamer bringing the goods. In three months, at the outside, the Brazilian merchant has replenished his stock with English or continental wares.

Quite different is the case when it is a question about American goods. In the first place, there is no line of mail steamers, properly speaking, between these two countries, and the cargo steamers carrying mails to the United States have no certain days of departure; nor do they make a determined number of trips, often departing a week or more later than the day advertised. When at last these steamers have started on their voyages they invariably call at some of the other Brazilian ports, where the delay is sometimes as long as a week at a single port, and finally arrive in the United States in from twenty-five to forty days. Counting the time from the day for which their departure was advertised, the time extends from thirty-two to forty-five days. The order is then executed in the United States, let us say, in the same time as in Europe—in a month; then the manufacturer's attention is directed towards shipping opportunities, which he will find under circumstances equal to those described, and the goods will require the better part of six weeks, and often even more, to reach here. Thus, where an order required at the outside three months to be executed from Europe, the order for American goods is executed with the greatest of difficulties in four or five months. But this is not all, for before goods are ordered connections have to be made, questions asked and answered, and many details arise which make additional correspondence necessary. While nine questions and answers can be exchanged with Europe in one year, only four questions and answers can be exchanged with the United States during the same period. The state of affairs is even worse, if anything, in the northern parts of this Republic. From what has been said it will astonish nobody that American trade, with the exception of articles for which this country is to a great extent dependent on the United States, has increased no more in proportion since

the existing reciprocity treaty was made between the two countries than the trade of other countries during the same time; the import of wheat, it may be said, has ceased altogether, for, while the import of American wheat was 455,756 bushels in 1890, that of 1893 was only 10,635 bushels, against 1,780,027 bushels from the Argentine Republic.

The only solid basis possible between the United States and Brazil is to bring the two countries closer together through rapid mail communication and ampler shipping facilities, without which all efforts on the part of Americans to gain some of the trade now done by other countries will be in vain. Great Britain has two powerful lines of steamers carrying mails in seventeen to nineteen days and two important lines of cargo steamers running to this country. France has a fine line of mail steamers, also carrying mails in seventeen to nineteen days, and two powerful lines of cargo steamers. Germany has two lines of cargo steamers forming in themselves a numerous fleet. Italy has two lines of rapid steamers, making the voyage in from fourteen to sixteen days. The United States have actually two lines of sailing vessels trading to this port, making average voyages of from fifty to sixty days.

The remarks upon the want of adequate shipping facilities for general merchandise are equally applicable to the export of American flour, and, while this is felt in the generality of cases, it is especially confirmed by a recent feature in the flour market of Rio de Janeiro, viz:

Through reasons which have no bearing on the case in question, flour was sold at the end of December of last year for about $7.50 per barrel, or at a profit of over $2.50 per barrel, which is, of course, considered an unusually good profit. As may be imagined, this was immediately cabled by the representatives of the American flour trade to the United States and by those in the River Plate flour trade to that country. The consequence was that considerable quantities of flour were shipped from both sides, with the result that the River Plate flour, coming in about ten days, has benefited to a great extent by this sudden and unexpected demand for flour, while the bulk of the American flour came some fifty or sixty days after that time, and has thus not only not had the advantage of this favorable tendency of the market, but, on the contrary, had to be sold at depressed prices, while that quantity of flour which was displaced by River Plate flour is to that extent a decrease in the export of American flour to this country. The response to this will probably be that the River Plate will be always able to put its flour quicker into this market. This, of course, can not be denied; but there is still a great difference between a voyage of fifty to sixty days by a sailing vessel and a voyage of about three weeks per steamer. Had this flour arrived in that space of time a great deal of it would still have been consumed and would have obtained far better prices in competition with the former. This state of affairs is even worse in the northern ports, especially in Ceara, Maranhão, and, to a great extent, at the Amazonas ports, where there are no special flour merchants, but merchants dealing in a variety of merchandise, and who

do not care to cable for the small lots of flour they require from time to time. To these the "monthly" mail communication is of great disadvantage in their transactions with the United States, while, on the other hand, the important cities of Bahia and Pernambuco are not much better off.

TRADE OUTLOOK.

There are not only no prospects for doing a more extensive business in American wheat flour in the near future, but, on the contrary, if proper steps are not taken in time, there are strong indications for its decrease in the whole of that part of Brazil which is situated southward of Pernambuco, and which comprises about six-sevenths of the population of this country, from reasons which have their origin more or less in the geographical relation of the United States to Brazil, as compared with that of its rivals as flour furnishers—the Argentine Republic and Uruguay.

Our reciprocity treaty with Brazil and the duty which the River Plate flour pays against the entry free of duty of the American flour should be, it may be said, sufficient to make the American flour compete favorably with the former. To this the answer is that the United States can not favorably compete under existing circumstances with the River Plate republics, despite the reciprocity treaty. On the contrary, the United States are at a considerable disadvantage, through (1) the considerably higher freight American flour has to pay (excepting, perhaps, as regards the states of Manaos, Para, Piauhy, Maranhão, and Ceara, comprising at the most one-seventh of the entire population), and (2) the Argentine miller is almost in direct connection with the Brazilian flour consumer, and thus saves the broker's commission which the American miller pays in selling to the American export commission house, 3 per cent commission which the American export commission house charges for exporting the flour, and interest at 6 per cent per annum, or about 1 per cent for the time the American flour and the remittance for its value are on voyage, both these voyages taking about two months more in the case of the United States as compared with the Argentine Republic and Uruguay.

Besides, when the reciprocity treaty was made, entering into force April 1, 1891, two important points escaped the attention of the American statesman—(1) the fluctuating value of the milreis, the average value of which for the year 1888 was 25¼*d.*; for 1889, 26$\frac{13}{16}$*d.*; for 1890, 22⅝*d.*; for 1891, 16.33*d.*; for 1892, 11.94*d.*; for 1893, 11.56*d.*; and to-day (February 6, 1894) only 9¾*d.*;* and (2) the rapid changes on the part of the Brazilian Government in regard to the currency in which the duties are to be paid, that is, whether in Brazilian paper currency or in gold. Flour paid duties (16 reis per kilogram) up to June 30, 1890, in paper currency; from July 1, 1890, to November 14, 1890 (16 reis per kilogram), 80 per cent was payable in paper currency and 20 per cent in gold; from November 15, 1890, to December 31, 1891 (16 reis per kilogram), entirely payable in gold, or the

*In the history of Brazil exchange was never so low as it is at present.

milreis calculated at 27*d.* sterling; and from January 1, 1892, up to this date (50 per cent, or altogether 24 reis), entirely payable in paper currency.

Now, let us see the effects the fluctuations of exchange and the various dispositions as to the currency in which the duties are to be collected have had on the River Plate flour as against American since the reciprocity treaty was enforced (taking an English penny roundly as 2 cents in United States gold): A barrel of flour coming from the River Plate of the weight of 196 pounds, or 88.888 kilograms, paid from April 1, 1891, to December 31, 1891, duties at the rate of 16 reis per kilogram in gold, or, at the exchange of 27*d.*, 76.3 cents in United States gold; from January 1, 1892, to December 31, 1892, 16 reis plus 50 per cent, or 24 reis in paper currency, or, at the average rate of exchange of the year 1892 (11.94*d.*), 50.9 cents in United States gold; from January 1, 1893, to December 31, 1893, 24 reis per kilogram (as in 1892) in paper currency, or, at the average rate of exchange of the year 1893 (11.56*d.*), 49.1 cents in United States gold; to-day (February 6, 1894) at 24 reis per kilogram, at to-day's exchange (9¼*d.*), 40.6 cents in United States gold.

Let me here explain why there is such an important difference in the freight rate for flour from the United States as against that from the River Plate over and above the difference in distance. American flour has to be shipped in barrels on account of the long voyage it has to make under the equator, while River Plate flour comes in bags. In this respect it is stated, on good authority, that flour in barrels occupies 33 per cent more ship room than flour in bags. This premised, we will accept the value of flour to be the same in New York and in Buenos Ayres, or $4.50 per barrel in 1891, $4 in 1892, and $3.50 in 1893 and at the commencement of 1894, and take into account a fair average rate of freight from New York to Rio de Janeiro at $1 per barrel, as against a good rate of 40 cents per two bags weighing 98 pounds each from the River Plate. Further, the insurance from the United States is one per cent, as against one-half of one per cent from the River Plate.

Let us now compare the cost of the flour coming to Rio de Janeiro from the one and the other of these countries on the basis of the various statements made.

By the comparative statement following it is demonstrated that in proportion with the fluctuations in exchange and the various dispositions of the Brazilian Government regarding the currency, in which the duties are to be paid, the American flour becomes more or less protected, and while it was on something like an even footing with the River Plate flour in 1891, it has been at a disadvantage ever since that time.

It may be observed here that the average of the River Plate flour is of a considerably lower quality than the American flour, and is, for that reason, always sold at from 30 to 50 cents below the price of the latter. The American flour being of a superior quality is also a reason why it is preferred.

Cost of flour coming to Rio de Janeiro.

Costs.	American.	River Plate.
1891.		
Cost per barrel, free on board	$4.50	$4.59
Freight	1.00	.40
Interest for 2 months	.05½	.....
Export commission (3 per cent)	.16½	.....
Insurance	.05¼	.02½
Duty	.....	.77
Total	5.77¼	5.69½
1892.		
Cost per barrel, free on board	4.00	4.00
Freight	1.00	.40
Interest for 2 months	.05	.....
Export commission (3 per cent)	.15	.....
Insurance	.05	.02
Duty	.....	.51
Total	5.25	4.93
1893.		
Cost per barrel, free on board	3.50	3.50
Freight	1.00	.40
Interest	.04½	.....
Export commission (3 per cent)	.13½	.....
Insurance	.04½	.02
Duty	.....	.49
Total	4.72½	4.41
1894 (February 6).		
Cost per barrel, free on board	3.50	3.50
Freight	1.00	.40
Interest	.04½	.....
Export commission (3 per cent)	.13½	.....
Insurance	.04½	.02
Duty	.....	.40½
Total	4.72½	4.32½

Let us now examine the advantages that the reciprocity treaty has brought to American wheat, while we keep in mind that all other than American wheat pays 5 per cent ad valorem duty. Accepting a value of 70 cents (United States gold) per bushel in New York and in Buenos Ayres, and an advantageous freight rate for wheat from New York to Rio de Janeiro at 30*s.* per ton, while 15*s.* may be considered a good rate from Buenos Ayres to Rio de Janeiro, we will get the following prices of the wheat landed at Rio de Janeiro, with the advantage for the Argentine Republic of a voyage of from five to ten days against twenty-five to sixty days from the United States:

	Cents.
Value in United States gold of wheat in New York.....per bushel...	70
Freight to Rio de Janeiro at 30*s.* per ton, or, say, 33 bushels to the ton at 10.9*d*.....	22
Total.....	92
Value of Argentine wheat in Buenos Ayres.....per bushel....	70
5 per cent ad valorem duty.....	3½
Freight to Rio de Janeiro at 15*s.* per ton.....	11
Total.....	84½

It will thus be understood that, despite the 5 per cent ad valorem duty the River Plate wheat pays, it has a considerable advantage over the American wheat through the shorter distance it has to travel, and it will astonish nobody that the American wheat import, which was 455,756 bushels in 1890, 204,452 bushels in 1891, and 135,452 bushels in 1892, became reduced in 1893 to 10,635 bushels, and will cease entirely unless River Plate crops are exceptionally bad and those of the United States good.

The readers of this report are acquainted with the area, population, etc., of the two River Plate republics, and if these are here recalled it is only to give more force to the argument in question. In speaking of these two republics it may be permitted to speak of them as if they formed one, because (1) the interests of the Argentine Republic and those of Uruguay are the same toward Brazil, speaking from a commercial point of view, as opposed to those of the United States, and (2) their entries in the Rio de Janeiro custom-house being often comprised under the name of River Plate make it difficult to distinguish exactly the commercial intercourse between this port and the one or the other country. The statistical figures of Rio de Janeiro will, therefore, be quoted under the heading of the Argentine Republic, Uruguay, and River Plate.

The Argentine Republic has an area of 838,600 square miles; Patagonia (claimed by the Argentine Republic), 376,600 square miles; Uruguay, 70,000 square miles; total area, 1,285,200 square miles. The population of the two countries is: Argentine Republic, about 4,500,000; Uruguay, 700,000; total, 5,200,000; or about 4 inhabitants to the square mile, as against 23 inhabitants to the square mile in the United States.

It will require no particular persuasive power to convince anyone that there is plenty of room for more population in these countries, which they are likely to get, considering that their population has more than doubled since 1881 and that Europe is continually looking for new territory wherein to dispose of its surplus inhabitants. It is also well known that the greatest part of their territory is fertile agricultural land, to a great extent still in its virgin state. They have great water ways, an immense coast line, and the mileage of their railways is on the increase. Their milling plants, it is true, are still of a low capacity, and leave a great deal to be desired to become as perfect as the average milling plants in the United States, but they have the fertile agricultural soil and thus all the advantages to invite immigration to cultivate the land and capital to develop their natural resources.

The Northwestern Miller, of Minneapolis, Minn., has some interesting matter in connection with this question by Mr. Dennison B. Smith, of Toledo, Ohio, and I quote therefrom:

I venture to reproduce some reports from my latest English papers that have a future, if not a present, significance. The latest reports from Buenos Ayres give glowing accounts of the wheat crop of the Argentine Republic now being harvested. The yield is estimated at 80,000,000 bushels and the export surplus at 53,000,000 bushels. Of the last crop, up to October 31, the exports were 33,000,000 bushels. Of course, I know that newspapers are everywhere given to "painting the lily" in their estimates of production, and it is said that

those of the Argentine Republic are particularly addicted to this custom, but this statement of increased exportation is corroborated.

Granting, as Mr. Smith says, that the newspapers, in estimating the export surplus of the Argentine Republic, had been "painting the lily," we will discount 50 per cent as an overestimate, and will still get for this year an increase of 10,000,000 bushels against last year's crop, or an increase in the export surplus of 30 per cent. This, under ordinary circumstances, may be attributed to a superior crop against an inferior one of last year, but when an increase of that importance takes place in a country during a year in which civil war and anarchy reigned supreme, the question naturally presents itself to our mind, how much will the crop of the Argentine Republic increase, seeing that they have hundreds of thousands of square miles of fine agricultural lands yet uncultivated, if that country enjoys twenty years of internal and external peace?

It will be well for the United States to treat the River Plate republics as formidable rivals in the export of wheat and wheat flour to Brazil at present and in the near future, and as dangerous competitors with the principal American export product in the remote future.

Let us compare the relative commercial importance of the United States and the River Plate republics toward Brazil and see whether that does not concern the case in question.

The total exports and imports, on a gold basis, of Rio de Janeiro during the years 1890 and 1891 (gold in specie omitted) were as follows:

Year.	Exports.	Imports.
1890	$51,060,185	$66,203,384
1891	48,281,203	55,633,945
Total	99,341,388	121,837,329

The share of the United States and the River Plate republics in this trade was as follows:

Countries.	Exports.	Imports.
United States:		
1890	$33,318,816	$6,897,420
1891	30,156,868	5,517,429
Total	63,475,084	12,414,849
Argentine Republic (1890)	1,113,555	5,919,253
Uruguay (1890)	309,315	3,970,437
Total	1,422,870	9,889,690
Argentine Republic (1891)	481,685	4,050,930
Uruguay (1891)	239,206	1,814,668
River Plate (1891)	69,463	.....
Total	790,354	5,865,598
Total River Plate, 1890 and 1891	2,213,224	15,755,288

Examining the above figures, we arrive at the following percentages from Rio de Janeiro's total export and import:

Countries.	Exports.	Imports.
	Per cent.	*Per cent.*
United States	63.9	10.2
Argentine Republic and Uruguay	2.2	12.9

The percentages of several of the other principal countries trading with Rio de Janeiro are:

Countries.	Exports.	Imports.
	Per cent.	*Per cent.*
Germany	11.5	12.3
France	7.7	16.2
Great Britain	4.6	31.5
Italy	1.24	1.08
Portugal	0.12	4.6

We will now inquire into the advantages which the reciprocity treaty has given to the United States and the advantages which Rio de Janeiro has derived therefrom during the first nine months of the treaty, viz, from April 1 to December 31, 1891: Rio de Janeiro imported from the United States goods to the value of $5,517,429.38, on which there should have been paid import duties (which were then payable in gold at the rate of 27*d.* per milreis) of $2,386,799.30. Of this duty amount, there was paid on merchandise not benefited by the reciprocity treaty $1,683,932.02. The benefits accruing from the treaty, with 25 per cent abatement, amounted to $171,013.08, and on merchandise free of duty the saving was $147,453.02. This shows the total benefits to American trade through the reciprocity treaty during the nine months from April 1 to December 31, 1891, to be $384,401.18.

Not taking into consideration any other produce exported from this port to the United States but coffee,* we find that 207,627,684 pounds of coffee were exported to the United States during the nine months from April 1 to December 31, 1891, which would have paid import duty in the United States, had it come from a nation not favored by the reciprocity treaty, at 2 cents per pound, of $4,152, 553.68, against which American trade benefited at Rio de Janeiro through the reciprocity treaty $384,401.18, leaving a balance against the United States of $3,768,152.50, or, in other words, Brazil benefited nine and four-fifths times as much as the United States during the first nine months the reciprocity treaty was in existence.

The United States are by far the best consumers which Rio de Janeiro has, and that which can be said of this port can be said of Santos and the

* The official value of products other than coffee exported to the United States in 1891 amounted to only $32,945, not including that which came during the second half of the year from the State of Rio de Janeiro, for which there are no official values, but which are of no special significance.

Amazonas ports, while the advantage in all other ports is also on the side of Brazil. The River Plate republics are not only no greater consumers of Brazilian produce, but considerably more merchandise is imported into Brazil from the River Plate than is exported thereto.

To sum up, the advantages which Brazil derives from the reciprocity treaty are so great that, after giving to the United States all the concessions which we could desire, Brazil would be still the beneficiary.

RIO DE JANEIRO, *February 6, 1894.*

SANTOS.

STANDARD OF LIVING.

The standard of living here is high. Everything in the line of comestibles is consumed here.

The people are not only ready to eat, but are eating American wheat flour, which stands ahead of all other in their estimation.

QUALITY OF FLOUR USED.

The quality of American flour most used is made from spring wheat, yet all grades are sold here.

IMPORTS OF FLOUR AND WHEAT.

No official statistics relative to the importation of American flour at this port can be obtained for some time, as the following letter from the inspector of customs will show:

OFFICE OF THE INSPECTOR OF THE CUSTOM-HOUSE OF SANTOS,
Santos, February 21, 1894.

HENRY C. SMITH, Esq.,
U. S. Consul.

SIR: I am sorry that I can not comply immediately with the desire of your favorable letter of to-day; but as soon as we can get ready the statistics of American importations for the years 1892 and 1893, and as soon as we can complete our present work, which will take about three months, I will comply with your request.

Very respectfully, etc.,

LEOPOLDO L. DE ALENCAR.

EXCHANGE AND SHIPPING FACILITIES.

The facilities for monetary exchange are good; but all drafts for payment must be drawn in sterling on London.

The facilities for shipping goods from the United States are good, as there are many steamers and sailing vessels plying regularly between this port and the ports of the United States.

OBSTACLES TO TRADE.

So far as I have observed, there are no obstacles in the way of the extension of trade in American flour.

TRADE OUTLOOK.

In my opinion, the prospects for doing a more extensive business in American flour in this consular district are very flattering.

HENRY C. SMITH,
Consul.

SANTOS, *March 8, 1894.*

CHILE.

VALPARAISO.

STANDARD OF LIVING.

The standard of living in this district is very good, wheat flour being generally used throughout Chile, as there is no other cereal from which bread is made.

QUALITY OF FLOUR USED.

The quality of flour used is slightly inferior to American wheat flour, there being no demand for higher grades. About one-half the flour is made by the roller process, the other half being produced by the old methods.

EXPORTS OF WHEAT.

Chile is an agricultural country and produces a surplus of wheat, which is exported to Europe. The quantity exported in the year 1890, according to official figures, was 28,521 tons; in 1891, 175,244 tons; in 1892, 143,506 tons. The decreased export in 1892, as compared with the preceding year, was not due to a lesser area being cultivated nor a smaller yield, but to the unfavorable weather at harvest time, which rendered much of the grain unfit for shipment.

IMPORTS OF FLOUR.

No American flour was imported into this district during the years 1891, 1892, and 1893.

Under existing conditions there is no prospect of opening a flour trade in this country.

JAMES M. DOBBS,
Consul.

VALPARAISO, *March 28, 1894.*

PARAGUAY.

STANDARD OF LIVING.

The consular district of Asuncion comprises the Republic of Paraguay, and although the general "standard of living" can not be considered as high, or by any means equal to that which prevails in the United States, it is, nevertheless, continually rising. Since the standard of living is an important factor in the establishment of a trade, I may be pardoned for entering somewhat into detail in considering it.

At the close of the Paraguayan war against Brazil, Uruguay, and the Argentine Republic the population of this country had been reduced from 1,300,000 to somewhat less than 200,000, and many among the latter were foreign born. Statistics of this mournful period are not very reliable, but the above figures can not be far from the truth. At the opening of the war Francisco Solano Lopez was ruler of the country, and he had "inherited" the Presidency. He continued, and even exaggerated, the ultra-protectionist policy of his predecessors. He knew that his country was not so well adapted to the cultivation of wheat as her neighbor, the Argentine Republic, but insisted that if Paraguayans wanted wheat they should raise it for themselves, and that by so doing it would give them more work. This was undoubtedly true, for when an individual refuses exchange and insists upon producing for himself what some one else is better able to produce for him, he undoubtedly does give himself "more work." The result of his policy was the appearance of a few inferior wheat fields. They lacked the indorsement of nature to give them respectability, and consequently died a natural death. To-day there is not one acre of land, to my knowledge, throughout all Paraguay producing wheat, and the majority of the inhabitants live on maize and mandioca. Throughout the country districts a hard, wheaten biscuit is looked upon by many as a luxury. The Paraguayan people are ready and want to eat American flour, but the question is, will their respective governments allow them to trade freely for the satisfaction of that want? The Paraguayan Government has removed many of the restrictions that protection had imposed, and, consequently, the standard of living is rising, so that a way may be opened to the consumption here of American flour.

QUALITY OF FLOUR USED.

The best quality of flour is now used in Paraguay. The brands are known by the name of "Especial" and "Flor." I am informed by those who have used flour both here and in the United States that as good bread and pastry can be made from this flour as from any that is sold in the United States.

IMPORTS OF FLOUR AND WHEAT.

No American flour or wheat is imported into Paraguay. From other countries Paraguay has received during the three years ending June 30, 1893, between 7,000 and 8,000 tons of wheat flour and about 10,000 to 12,000 tons of wheat.

DUTIES.

The import duty on wheat flour at the Paraguay custom-house is $4 (paper) per sack of 90 kilograms, or about 60 cents in United States gold per barrel. It is said that this tax is imposed upon the people in order that the profits of the Paraguayan miller may be increased.

There is no import duty on wheat, it being claimed that free trade in wheat encourages the capitalist to erect flour mills by having the raw material of his business untaxed.

EXCHANGE AND SHIPPING FACILITIES.

The facilities for monetary exchange with Paraguay are not of the best. The only banker in the United States, so far as I have been able to ascertain, who can effect such exchange is Mr. Einseidber, 15 Wall Street, New York, who is agent for the Crédit Lyonnais. It may be said that second-hand banking business conducted through France can not be equal to direct dealing. If trade could be established between the United States and Paraguay undoubtedly this objection would disappear.

The facilities for shipping are also deficient. There is a British line of steamers running from New York to the River Plate, and its steamships arrive only once a month, so that many find it convenient to send goods from the United States to this part of the world via Europe. A merchant vessel looks for the success of her trip, to a great extent, on what she can secure here for return cargo. A merchant vessel coming to the River Plate would now be likely to carry back to the United States a cargo of wool, but the tariff on wool in the United States is so great that few business men have cared to pay it. About thirty ocean steamers enter the mouth of the River Plate every month, but none of them fly the American flag.

OBSTACLES TO TRADE.

The principal obstacle in the way of the extension of trade in American flour in the Republic of Paraguay consists in the fact that we will not receive its products in payment for what the Paraguayans would purchase from us. Among these products may be mentioned wool, "caña" (a species of rum), tobacco, and fine cabinet woods. As to "caña," the tax on it entering the United States would be more than 200 per cent. In calculating whether I could send some fine cigars to the United States I found that the tax would be about 800 per cent, while as to fine woods, besides the tax, which is paid by the man who buys them, the commercial intercourse between the United States and Paraguay has been so little that purchasers of cabinet woods do

not know what Paraguay can produce in that respect, and consequently no demand has been created.

TRADE OUTLOOK.

In my opinion the prospects for doing a more extensive business in American flour in Paraguay were never so good as they are at present. The Republic of Paraguay is essentially an interior country. It has no seaport whatever; it has no railroad connection with the seacoast, and all vessels leaving Asuncion must pass through Argentine territory. None of her mines are at present developed. Those that were worked during the régime of Lopez have long since been abandoned. Maize, mandioca, tobacco, oranges, bananas, rum ("caña"), and raw hides would all be remunerative productions under conditions of trade that were in any degree free, but the one article whose production would be capable of filling the country with wealth and giving to its inhabitants the blessings of civilization is "yerba mate," or Paraguayan tea. I have not space in an article of this sort to give in detail the many uses to which this plant can be put. It is enough to know that in Paraguay only can "yerba mate" be produced in perfection, and its use is only properly known in the countries contiguous to the River Plate. Brazil and the Argentine Republic produce it, but only in limited quantities and of an inferior quality.

All the wheat consumed in Paraguay comes from the Argentine Republic, but since the Paraguayan is not permitted to exchange his products freely with the Argentine (for tobacco, wood, "caña," etc., are all heavily taxed there) the quantity of wheat that he is enabled to purchase must necessarily be limited. His neighbor in the Argentine Republic should be his natural customer, but so fierce is the tariff war now being waged against Paraguay that many merchants here seem to think there is great danger of Paraguay being actually starved into becoming an Argentine province, which, indeed, must happen unless she can find an outlet for her products. Some of her merchants are now trying to establish commercial relations with the United States, and I have to record to-day the first invoice of goods sent to the United States from Paraguay since the establishment of this consulate seven years ago. More consignments are now preparing for shipment to the United States, and should the business prove a success, American wheat must be the most important among the many articles that may be demanded in return, and hence I am moved to repeat that the prospects for doing a more extensive business in American flour in Paraguay were never so good as they are at present.

EBEN M. FLAGG,
Vice-Consul.

ASUNCION, *March 24, 1894.*

WEST INDIES.

CAPE HAITIEN.

American flour is the only flour imported into this consular district, and it is greatly liked by the people. Wheat is not imported into Haiti.

The favorite brands are "La Rubio," "La India," "El Trocadero," "Esmeralda," "Ne Plus Ultra," and "Two Cities." As the people are poor they prefer the cheapest brands.

The duty on flour is $3.93 (Haitien currency*) per barrel.

The importation of flour at Cape Haitien during the three years ending June 30, 1891, 1892, and 1893, was as follows:

Year.	Barrels.	Half barrels.	Quarter barrels.
1891	16,410	4,780	5,490
1892	20,950	5,275	7,540
1893	18,755	6,710	8,265
Total	56,115	16,765	21,295

The Haitiens generally ship their coffee and other products to Europe, the prices obtained there being higher than those ruling in the United States, and American correspondents are paid in drafts drawn on Europe.

As will be seen by the foregoing statement, the flour trade here is already large. The only increase that can be looked for is that which results from drought, which curtails the plantain crop, plantains being largely used by the natives for "bread." In seasons of drought flour is imported to supply the deficiency in plantain food. On the other hand, when plantains are abundant there is a corresponding decline in the imports of flour.

STANISLAS GOUTIER,
Consul.

CAPE HAITIEN, *March 28, 1894.*

* The Haitien silver gourde was worth, according to the United States Treasury valuation tables, 96.5 cents on April 1, 1894.

BRITISH INDIA.

STANDARD OF LIVING.

The standard of living of the great mass of the 300,000,000 people who compose the population of India is very low. The wants of the people are few, and most of them are content to earn enough to sustain life. If the crops fail, they die of famine. The periodic famines which have ravaged India from time immemorial have been to some extent mitigated by the great irrigation works carried on by the Government. The extension of the rail-road system has also been of great benefit in transporting cheaply the surplus of one district to another where there is a scarcity. The staple food is rice and beans.

Flour can never figure to any extent in the bill of fare of a people as poor as the inhabitants of India. An able-bodied agricultural laborer earns about $1.80 per month; a common blacksmith, mason, or carpenter will get $4.20 a month. In many parts of India it would not be more than half of this, but taking the country over these would be good average wages. Other labor is paid in proportion.

QUALITY OF FLOUR USED.

A large quantity of wheat is ground by the mills of the country, and these furnish the greater part of the flour consumed by the people. These mills are increasing their output and improving its quality. It is not possible to make flour from Indian wheat equal to the best grades of American. For this class of flour (American), however, the demand is very limited. It is pretty much confined to Europeans, who are few in number.

EXCHANGE AND SHIPPING FACILITIES.

The facilities for monetary exchange are ample. The numerous banks are able to handle any amount of business.

The facilities for shipping from the United States are good, and are afforded by numerous lines of steamers from Great Britain for the Atlantic and several lines of steamers to Hongkong and the Chinese ports, where goods are transshipped to or from the Pacific Coast. There is also much trade done in sailing vessels direct. All this freight goes into the pockets of English owners, masters, and seamen. American ships have practically disappeared from these waters.

IMPORTS OF FLOUR AND WHEAT.

I have not been able to obtain from the official statistics the exact quantity of American flour imported, as it is nearly all from California, and is entered

as coming from Hongkong and the Straits Settlements. As it comes in small shipments by every steamer, each one of these small importations would have to be traced back to insure perfect accuracy. The figures given, however, are, for all practical purposes, correct. The prices are official, taking the rupee at 30 cents, which has been about its average value during the three years given.

Description.	1890–'91.		1891–'92.		1892–'93.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Imports:						
Wheat.....cwts...	124,135	$159,544	345,912	$458,322	102,523	$140,618
Flour.....pounds...	1,526,114	38,306	1,399,655	38,682	1,216,581	39,955
Flour from the United States.....pounds...	670,456	18,719	830,991	23,811	831,706	24,622
Exports:						
Wheat.....cwts...	14,320,496	18,127,278	30,303,425	43,141,386	14,973,453	22,321,150
Flour.....pounds...	47,035,853	818,669	61,088,205	1,084,757	57,940,360	.....

OBSTACLES TO TRADE.

The probability of any great extension of the market for American flour is small. The chief obstacles in the way are that India is a great wheat producing and exporting country, together with the fact that but few of the people earn enough to enable them to buy flour which the American people can afford to produce. The flour used by the natives is a coarse, low grade. There is no import duty on wheat or flour from any country.

VAN LEER POLK,
Consul-General.

CALCUTTA, *February 7, 1894.*

CHINA.

CANTON.

It is not easy to obtain anything like accurate information as to the quantity of flour and wheat brought from the United States into this province of Kwangtung; but on January 27, 1892, after carefully examining the facts as to this trade, in company with an extensive miller from California, who sends considerable flour to Hongkong and China, I wrote to the Department that the quantity of American flour received in the province of Kwangtung amounted annually to about 100,000 barrels. There are no trade statistics accessible here. Nearly all of the American flour is sent from San Francisco to Hongkong by Chinese merchants in exchange for Chinese merchandise, and it is sold by Chinese dealers in Hongkong to their customers in this province. This trade has steadily increased and is increasing. I think that in 1893 about 123,000 barrels of flour came from the United States into this province. There is but little wheat imported.

Nearly all of the wheat flour received by China is from California. The flour usually comes in 50-pound sacks, and as pleasant evidences of this trade are visible in numerous sails made of flour sacks for small boats used by the natives on the Canton River, one is reminded that the American flour trade is in vigorous operation. Still, the multitude of natives continue to consume rice as their staple article of food.

CHARLES SEYMOUR,
Consul.

CANTON, *March 12, 1894.*

HANKOW.

STANDARD OF LIVING.

The quantity of flour consumed here varies according to the demand of foreign residents or the means of the natives. The latter live very economically, subsisting on anything that they can afford to purchase—rice, wheat, beans, fish, fowls, and a little meat. They would use American flour if they could afford to do so.

QUALITY OF FLOUR USED.

The consumption of foreign flour is confined to the foreign population, who purchase none but the best California brands, though some is used by the native bakers. The natives use domestic flour.

IMPORTS OF FLOUR AND WHEAT.

The quantity of foreign flour received at this port is so small that it is not classified at the customs except as sundries. No tabulated record is kept of it.

No wheat is imported.

EXCHANGE AND SHIPPING FACILITIES.

Monetary facilities are ample and exchange good. A number of responsible banking houses are located here, sufficient to meet all demands.

Shipping facilities are also good. A number of lines of boats on the Yangtze, carrying a daily mail, connect with ocean steamers at Shanghai. Stern-wheel boats also run regularly to Ichang, 400 miles above this port.

OBSTACLES TO TRADE.

There are no obstacles to the extension of trade but the price and cost of carriage, the latter being moderate, owing to active competition.

It would be impossible to increase the importation of flour to any considerable extent at the present cost of raising wheat here, owing to the low price of labor. American flour sells here at $2.25 per sack of 50 pounds and retails at 6 cents per pound. Native flour, which is considered more nutritious, retails at 2 cents per pound and frequently for much less. It is dark and unbolted, and is ground in small mills.

The wheat-growing area is quite extensive in this province, extending for many miles along the river, and supports a large population. Lying in the valley of the Yangtze, during the summer months most of it is overflowed, but as soon as the waters recede in the fall it is broken up and seeded with wheat, as has been the custom for centuries, the deposits left by the receding water fertilizing the land. An entire failure of crops is unknown here. The grain is harvested before the annual summer rise, and yields from 7 to 10 piculs* per acre. This land could not be utilized for any other purpose except for the cultivation of some hardy vegetables that could stand the frosts of winter. Wheat brings from $1.40 to $1.80 per picul. A picul of wheat varies in weight from 120 to 130 catties,† according to quality. The standard of currency here is the Mexican dollar.

Considerable wheat is exported from this port for home consumption, to wit: In 1892, 68,744 piculs; in 1893, 112,359 piculs.

It is with great difficulty that anything like accurate estimates can be obtained in this section.

JACOB T. CHILD,
Consul.

HANKOW, *July 12, 1894.*

*1 picul=133⅓ pounds. †1 catty=1⅓ pounds.

HONGKONG.

STANDARD OF LIVING.

The total population of the colony of Hongkong and its dependencies is estimated at about 240,000, of which number about 9,000 are Europeans of various nationalities, about 3,000 are Indians and other Orientals, and the remainder are Chinese.

The standard of living among the European contingent is much the same as in Europe and America, but as the great mass of the population consists of Chinese, who use rice as a substitute for flour, it can not be said that the people as a whole are ready to eat American flour, except in comparatively small quantities in the form of cakes and sweetmeats.

QUALITY OF FLOUR USED.

About 75 per cent of the total imports of American flour consists of the "best extra" quality and 25 per cent of lower grades.

IMPORTS OF FLOUR.

The imports of wheat flour into Hongkong during the years ending May 31, 1893, were as follows:

Year.	From—		Total.
	San Francisco.	Tacoma and Vancouver.	
	Quarter sacks.	*Quarter sacks.*	*Quarter sacks.*
1891	1,692,174	506,166	2,193,340
1892	1,235,515	337,715	1,573,230
1893	1,519,093	539,809	2,058,902

There are no grist mills here, hence wheat is not imported.

I may add that as there is no custom-house at Hongkong, it being a free port, no official statistics can be given. The above figures were obtained from the largest importers of flour in Hongkong, and are exact.

EXCHANGE AND SHIPPING FACILITIES.

There are several large banks, besides numerous Chinese money-changers.

There are three lines of steamships from the United States, two from San Francisco and one from Tacoma. The Canadian Pacific mail steamers from Vancouver also take freight from the northern Pacific ports of the United States.

OBSTACLES TO TRADE.

The only obstacle to the extension of trade in American flour in this district is that already suggested, namely, that it is more expensive than

rice, and the Chinese, who form the great bulk of the population, can not afford to substitute flour for the cheaper grain, even if they wished to do so.

TRADE OUTLOOK.

The proposed opening up of new portions of the Yellow River to European traffic, and the reduction of duties at Canton, which is expected to accompany this action, must, in my opinion, increase the consumption of flour among the inhabitants of southern China.

W. E. HUNT,
Consul.

HONGKONG, *February 1, 1894.*

NINGPO.

STANDARD OF LIVING.

The standard of living of the poorer classes is so low that no comparison can be made with any class of inhabitants of the United States. The principal article of food is rice, and sometimes a little fish, rarely meat. What would be an ordinary meal to the laborer in the United States would be an undreamt-of feast to the man here engaged in like work. In the domain of labor the laborer in the United States is the best fed, and the laborer here is the worst fed. It is marvelous to see with how little real nutritive food the laborer, or, as he is termed here, the coolie, manages to exist. What the coolie consumes during the day would not form a breakfast for a laborer at home.

The results of the difference in living is seen in the amount of work accomplished at the end of the day, one man in the United States easily doing more than the combined efforts of six coolies here. Generations of poorly fed men have resulted in a race of low vitality and of little stamina. The constant diet of rice has tended to cause many diseases of the eye, and I am told that 90 per cent of all the cases of ophthalmia and kindred diseases are caused by this food.

QUALITY OF FLOUR USED.

I have repeatedly endeavored to get the Chinese here to buy our Indian meal, for it is not only cheaper than rice, but, of course, more sustaining. Rice is the staple article of food, its use being more universal than is that of flour in the United States. But little bread is made of flour or meal of other cereals. The flour mostly used is made of chestnuts, potatoes, or rice.

The American wheat flour used in this port is called "Golden Gate," and is used by the bakers for making cakes and pastry.

IMPORTS OF WHEAT AND FLOUR.

The following table of imports of American wheat flour for the years ending June 30, 1891, 1892, and 1893, was kindly furnished me by the

commissioner of customs, the published returns not giving the desired data:

	Pounds.
1891	652,947
1892	834,103
1893	770,461

The above includes only the importation by steamers from Shanghai. No account can be had of the quantities taken into the province by transit passes overland from Shanghai, and no mention is made of flour in the Wenchow tables of imports. It may be safely stated that the above represents not more than two-thirds of the actual importation of our flour into this district.

No wheat is imported from any country, and flour only from the United States.

EXCHANGE AND SHIPPING FACILITIES.

There are no banks here doing a foreign-exchange business, all such business being transacted in Shanghai.

There is no reason why ships can not make direct voyages to this port. Years ago this harbor was constantly filled with ships from the Atlantic ports of the United States, but it is years since a ship from the United States has put in here. Three years ago, however, a ship left New York bound direct for Ningpo, but, unfortunately, was wrecked before reaching the coast of China.

I am of the opinion that a good direct carrying trade can be done, as one-ninth of all the tea imported into the United States is Ping Suey, every pound of which comes from this district, and that trade forms only one-half of the exports of tea to the United States from Ningpo. Add to this the silks, matting, hats, etc., all of which are shipped via Shanghai, and good homeward cargoes are in sight. At present all imports of flour are received from Shanghai.

In this consular district there are from 25,000,000 to 35,000,000 people, and it is one of the richest and most fertile sections of China. If our merchants took as much trouble to extend their trade in China as they do in some other parts of the world, they would in a few years meet with much better results, financially, than they are now doing. The people are willing and ready to buy, providing the merchandise is cheap and good.

OBSTACLES TO TRADE.

The great obstacle to commerce in China is the administration of the likin and the guilds. These two institutions are the greatest hindrances to trade. Remove the likin and we have an immense market opened to us.

The guilds are societies or boards of trade, and control all business in their respective lines. Without going into details on a subject that has so often been treated in former reports by the consuls in China, I will say that flour, like all foreign exports, if sent into the interior must be covered by a

transit pass, on which another duty, or, as it is called, "likin," has to be paid, although the regular import duty has been paid at the port of entry. Besides, it is subject to frequent examinations and often to delays and annoyances by the likin officers, all of whom are desirous of making as much as possible out of the merchant who deals in foreign goods. It is immaterial whether the flour is owned by a native or a foreigner, the same system prevails, but it is rarely, if ever, that a foreigner accompanies his merchandise into the interior. In fact, it is out of the question for him to do so, as everything is against him—the likin stations, the constructions placed on the treaties by the authorities, etc. This is wrong, and not in accord with the spirit of any treaty.

The guilds are the first block in the path toward an extension of trade. To illustrate: An American imports flour into Ningpo; that American must make terms with the guild controlling foreign merchandise or he will not be able to sell a pound of flour, for every native flour merchant is a member of the guild, and, if the guild sends out an order not to buy the American flour, no merchant will think of disobeying. As the likin office is always in affiliation with the guilds, it is useless to attempt to send the flour into the interior.

The enemies of the foreign merchant in China are the guilds and the likin, as the *literati* are the enemies of the missionary.

At present all import business is completely paralyzed, owing to the condition of silver, and until that metal has reached a more settled state we need look for no extension of our trade in the East. When the money market is once again on a reasonably permanent basis, we may expect an increase in our trade.

I can do no better than to quote from the very able report on the "Trade of China for the Year 1893" (just published) of the statistical secretary of the imperial maritime customs, H. Kopsch, esq., dated March 10, 1894:

> The revenue is the surest indication of decline or development in China's international trade, and the receipts derived from foreign imports afford proof of a portentous diminution, with no commensurate counterbalancing advance from the export trade abroad, as the constant downward tendency of sterling exchange of the Shanghai tael, which dropped during the year from 3*s.* 10⅞*d.* to 3*s.* 2*d.*, quite demoralized all export business.
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> * * * * * * *
>
> *Foreign trade.*—The division of the import trade in which foreign gold capital is embarked, which should be kept distinct from the equally large Asiatic portion paid for in silver, has been characterized by an unprecedented retrograde movement, which can only be ascribed to the depreciation in the gold value of silver, causing an immense curtailment at their greatly enhanced prices in the demand for textiles, opium, etc. Indeed, if this decline continues, it will completely nullify the advantages expected to accrue from the opening of new ports and great markets, such as Chungking, where the value of foreign merchandise imported has fallen off by over 1,250,000 Haikwan taels* as compared with the figures of 1892. Nor has the depreciation in the gold value of silver stimulated the export trade abroad to the extent anticipated. It would thus appear that to the trade of China the great appreciation of gold has proved ruinous to the import business, and the instability of silver utterly disorganizing to

*The Haikwan (or customs) tael is valued at $0.96 (gold) at Ningpo.

the export trade. * * * Reference to the list of imports from European gold-currency countries discloses an unparalleled falling off in all kinds of textile fabrics.

* * * * * * *

In connection with the decline in the value of China's foreign import trade it may not be out of place to remark that to the observer in the East it seems inexplicable that the gold-currency countries, while striving to extend their trade, should resolutely ignore the fact so clearly demonstrated by the decline in the demand for piece goods that to the millions in China the tael or ounce of silver is still a tael of undiminished purchasing power, whether the sterling value be 6*s.* or 3*s.*, and that so soon as the discredited tael fails to buy the same quantity of foreign goods as heretofore the consumer ceases to be a customer, and will supply his own wants by manufacturing textiles from home-grown materials.

* * * * * * *

A nation whose inexhaustible supply of laborers excites such alarm among western peoples and governments is not likely to prove less formidable when it brings similar forces of cheap silver-paid skilled operatives into competition with the textile industries of the gold wage-earning classes of Europe and America, and the effect will be felt more acutely and cause greater consternation than the presence of Chinese labor abroad whenever it comes into rivalry with the handicrafts of Occidental races.

JOHN FOWLER,
Consul.

NINGPO, *March 26, 1894.*

JAPAN.

NAGASAKI.

QUALITY OF FLOUR USED.

American flour is consumed in this district. The quality used is mostly a mixture of Japanese and California and Oregon flour.

IMPORTS OF FLOUR AND WHEAT.

The quantities of American flour imported at Nagasaki during the years ending June 30, 1891, 1892, and 1893, amounted to 8,414,429 pounds, 4,975,075 pounds, and 2,592,655 pounds, respectively. The quantity imported from other countries during those years amounted to 436,575 pounds.

No American wheat was imported during the years under consideration, but 689,049 pounds were imported from other countries.

EXCHANGE AND SHIPPING FACILITIES.

Exchange is effected through the foreign bank agencies here, viz, the Hongkong and Shanghai Banking Corporation, Chartered Bank of India, Australia, and China, National Bank of China (limited), Mercantile Bank of India (limited), the Bank of China, Japan, and the Straits (limited).

Shipping facilities from Portland, San Francisco, and Victoria are good.

W. H. ABERCROMBIE,

NAGASAKI, *March 6, 1894.* *Consul.*

OSAKA AND HIOGO.

STANDARD OF LIVING.

The standard of living among the natives in Japan is very poor. Six-tenths of the population do not earn more than $10 per month. The people like American flour, but only eat bread or use flour when there is a short rice crop.

An inferior quality of flour is used, made from wheat grown in the country. That imported is from California, Oregon, and Washington, shipped in 50-pound bags.

IMPORTS OF FLOUR AND WHEAT.

The importation of American flour into this district for 1891, when there was a short rice crop, amounted to 2,216,160 pounds; in 1892, it amounted to 814,000 pounds; and in 1893, to 800,000 pounds.

No American or any other wheat was imported during the above years, nor was any wheat flour imported from other countries during the same period.

EXCHANGE AND SHIPPING FACILITIES.

The facilities for monetary exchange are very good, there being both native and foreign banks.

The facilities for shipping from the United States are ample both by sail and steam.

OBSTACLES TO TRADE.

The only obstacle in the way of the extension of trade in American flour is that the Japanese are, for the most part, too poor to buy it, and prefer rice. The poorer people eat rice and barley boiled together.

There can be only a small yearly increase in the consumption of American flour, probably 100,000 to 200,000 pounds per annum.

E. J. SMITHERS,
Consul.

HIOGO, *January 31, 1894.*

JAVA.

STANDARD OF LIVING.

The standard of living in this district is high for the Europeans and low for the Javanese and Chinese. The first consume wheat flour and the two latter rice.

The choice of the Europeans is American flour, but, generally speaking, it is damaged before arriving here, and consequently does not sell as well as Australian flour. If in good condition it is preferred, and finds a ready market.

Imports of flour.

From—	1891.	1892.	1893.
	Tons.	*Tons.*	*Tons.*
United States	500	.....	300
Other countries	8,000	8,474	7,700
Total	8,500	8,474	8,000

Wheat is not imported.

EXCHANGE AND SHIPPING FACILITIES.

There are banking houses where exchange can be effected on all countries.

The shipping facilities from Pacific ports are by steamer or sailing vessel via Hongkong; from Atlantic ports, either direct by steamer or sailing vessel or via England per steamer.

OBSTACLES TO TRADE.

The only obstacle in the way of the extension of trade in American flour is the length of time it takes to reach here. Transshipping the flour is likely to damage it more or less, thereby decreasing its value. If shipped direct in small cargoes it would undoubtedly bring a good price.

TRADE OUTLOOK.

There is little prospect of the trade in American flour increasing unless it can be shipped direct, when it would arrive from San Francisco by steamer in four or five weeks. Australian flour is on the market in ten or twelve days after being shipped, and is received in good condition. Flour sells here at $6 and $7 per barrel or sack of 200 pounds.

B. S. RAIRDEN,
Consul.

BATAVIA, *February 20, 1894.*

PHILIPPINE ISLANDS.

CËBU.

STANDARD OF LIVING.

The standard of living in the Cëbu district is not high. The ordinary food of the bulk of the population consists of rice and maize, which are always procurable at moderate prices. These have always been the food of the people, and they do not show any desire to alter their mode of living.

QUALITY OF FLOUR USED.

"Sperry's XXX" flour is practically the only kind sold here.

IMPORTS OF FLOUR AND WHEAT.

Flour is not imported directly into this district, the supply being drawn from Manila. It is estimated that 400 quarter sacks are consumed here monthly, principally in the form of bread, by the European community.

Wheat is not imported at all.

EXCHANGE AND SHIPPING FACILITIES.

The financial arrangements of the district are carried out in Manila by representative agencies here. As stated before, our supplies come through Manila.

OBSTACLES TO TRADE.

The only obstacles to the extension of trade in American flour are the conservatism of the natives and their disinclination to work, which prevents their earning more than sufficient to purchase the cheapest form of food, which is probably maize. In my opinion, therefore, the demand for American flour is likely to be of slow growth.

G. E. A. CADELL,
Consular Agent.

CËBU, *March 8, 1894.*

MANILA.

STANDARD OF LIVING.

The Caucasian element here live very much as they do at home, but the natives and Chinese, who form over 99 per cent of the population, are rice-eaters. There is, however, a large consumption of flour by the European population. The troops and naval forces also use considerable quantities.

The natives, especially those living near the large towns, eat bread made of wheat flour.

IMPORTS OF FLOUR AND WHEAT.

The imports of American flour, imported from China, amounted to 335,000 sacks (quarter barrels) and 329,000 sacks in 1891 and 1892, respectively. The statistics for 1893 are not yet available.

Practically all the flour imported is American flour. Occasionally a sailing vessel leaves San Francisco to load outward at a Philippine port, and it often finds it convenient to take flour in lieu of ballast. Such imports would be credited to the United States, but almost every sack of flour that finds its way to these islands is transshipped at Hongkong into local steamers, and the customs statistics credit the import to China. Some small lots of Japanese and Australian flour also come via Hongkong, but these grades can not compare either in quality or price with California flour.

Wheat is not imported into these islands.

DUTIES.

The duty on quarter-barrel sacks of flour is 56 cents each, including duty on the sack, and on wheat 66 cents per 100 kilograms. The duty is the same on flour from all countries, except that from Spain. Spanish flour pays but 20 cents per barrel and Spanish wheat but 6 cents per 100 kilograms. It was expected that when these differential duties went into force (April 1, 1892) a large demand for Spanish flour would set in. This, however, has not proved to be the case.

EXCHANGE AND SHIPPING FACILITIES.

Flour business is only possible where a bank credit on London is opened by some bank here through some other bank in San Francisco.

There is no direct shipping between these islands, except as before stated.

TRADE OUTLOOK.

If flour were put on the free list here a much larger consumption would doubtless ensue. At present a 50-pound sack sells at wholesale at $2.25, local currency.

C. H. COWAN,
Consul.

MANILA, *February 7, 1894.*

SIAM.

STANDARD OF LIVING.

The Siamese live almost entirely on rice and fish, and flour is practically an unknown quantity to them.

QUALITY OF FLOUR USED.

The quality of flour used in Siam ranges from a "XX" brand, which sells at about $1 per 50-pound sack retail, to a kiln-dried flour in tin cans containing 10 pounds each imported from England, and which sells at about 95 cents per tin. The Sperry and Dayton brands from California are those principally found on the market.

IMPORTS OF FLOUR AND WHEAT.

It is impossible to give the imports of American flour, as the customs returns do not give the country of origin, but credit the product to the country from which it is received. The following statistics are, however, practically correct: American flour imported into Siam during the two calendar years 1891 and 1892 (the statistics for 1893 are not yet available) were 30,370 and 36,514 bags, valued at $29,508 and $36,782, respectively. The flour imported from other countries during the above years did not, in my estimation, amount to over $15,000.

Wheat is not imported into Siam.

DUTIES.

The import duty on wheat and wheat flour is 3 per cent ad valorem. The duty is the same on products from all countries.

EXCHANGE AND SHIPPING FACILITIES.

Exchange is principally carried on through the local branch of the Hongkong and Shanghai Banking Corporation. There are other agencies of minor importance.

The principal portion of goods shipped from the United States comes via Hongkong, where it is transshipped for this port; some, however, comes via Singapore, where it is also transshipped.

TRADE OUTLOOK.

The importation of a greater amount of American flour into Siam depends principally upon the increase in the number of foreigners in the country, who are practically the only consumers. The rice and fish diet fills entirely the wants of the Siamese, and they do not care for, and, in fact, know nothing of, flour.

ROBERT M. BOYD,
Vice-Consul-General.

BANGKOK, *February 2, 1894.*

STRAITS SETTLEMENTS.

STANDARD OF LIVING.

The standard of living in these possessions and throughout Malaisia falls below that of Europe, and far below that of the United States. With all but the Europeans, who are greatly in the minority, the real "staff of life" is rice, to which the natives add fruit, vegetables, and dried fish, the Chinese population supplementing the whole with pork—fresh when obtainable—an article of food forbidden by the Koran to the Mohammedan Malays.

QUALITY OF FLOUR USED.

The quality of flour most used in this colony and its dependencies is the medium grade of California flour, which appears to stand the climate better than the flour produced from wheat grown in the Northwest.

IMPORTS OF WHEAT AND FLOUR.

The amount of American wheat flour imported into the Straits Settlements during the years ending June 30, 1891, 1892, and 1893, was 12,722 tons, 13,805 tons, and 12,748 tons, respectively. No American wheat was imported during these years.

The quantity of wheat flour imported from other countries amounted to 1,104 tons, and of wheat 1,130 tons during the three years.

DUTIES.

In the Straits Settlements and their dependencies there are no duties imposed upon wheat or wheat flour.

EXCHANGE AND SHIPPING FACILITIES.

All facilities for monetary exchange are afforded by the leading banks at Singapore, which are the Hongkong and Shanghai Banking Corporation, the Chartered Bank of India, Australia and China, and the Mercantile Bank of India (limited).

Shipments hither of flour from the United States are made via the Pacific Mail Company's steamers to Hongkong, and thence transshipped to this point.

OBSTACLES TO TRADE.

The only apparent obstacle in the way of the extension of the trade in American flour here is the want of opportunities for direct shipments from San Francisco to Singapore.

TRADE OUTLOOK.

As the European population increases and the natives become more accustomed to the use of wheat flour as an adjunct to their ordinary diet the prospect of doing a more extensive business in the American product will steadily improve throughout these and the adjacent states.

The market is one which, I believe, will prove very valuable to us in the future, possibly in the very near future, and one which we should and can control.

E. SPENCER PRATT,
Consul-General.

SINGAPORE, *March 15, 1894.*

TURKEY IN ASIA.

PALESTINE.

STANDARD OF LIVING.

The standard of living among the natives of Palestine is comparatively low. Their wants are few and their poverty compels them to subsist on the bare necessaries. Vegetables form their chief food. The bulk of the population raise their own flour. When flour has to be purchased they buy the native product, which they can procure in the markets at an average cost of 10 cents per rottle (6 pounds).

The people are ready to eat American flour on one condition, namely, that they can obtain it as cheaply as they can the native flour, which, though inferior in quality, satisfies their wants.

IMPORTS OF FLOUR.

The European and American elements of the population, which number at most 12,000, together with probably 5,000 well-to-do natives, eat bread made from fine grades of flour. This demand is supplied by Russia and Austria. Russia is by far the largest exporter of flour to Palestine. The qualities of the Russian product are No. 1 and No. 0—from middling to finest. It is retailed in the markets at from 20 to 30 cents per rottle.

DUTIES.

The duty on all foreign wheat and flour is 8 per cent ad valorem.

SHIPPING FACILITIES.

The facilities for shipping from the United States to Palestine are very limited. No line of steamers is now making direct connection with our only seaport—Jaffa—which has no harbor, making the loading and unloading of cargoes always difficult and often dangerous.

OBSTACLES TO TRADE.

Two very decided difficulties are in the way of the introduction of American flour—first, the small demand on the part of the people for a better article than they themselves produce, and, secondly, the long distance which the American exporter would have to transport his goods. As facilities now

exist Russia or Austria can control the imports of wheat and flour to this country.

No flour is now imported from the United States, and, with the present means of transportation, no importer can attempt it with any hope of gain.

EDWIN S. WALLACE,
Consul.

JERUSALEM, *February 1, 1894.*

SIVAS.

STANDARD OF LIVING.

The standard of living in this consular district is extremely low. The people are miserably poor. They lead a "hand-to-mouth" existence. Owing to the absence of railroads and of all cheap and rapid means of transportation, and also to the fact that the more they produce the more grinding are the tax collectors, there is little inducement for the people to raise more wheat than they require for their own present needs.

QUALITY OF FLOUR USED.

Probably 75 to 80 per cent of the flour used here is wheat ground whole, uncleaned, and not sifted. The wheat is thrashed on the ground by means of a drag drawn over it by oxen, and consequently contains a considerable quantity of dirt and small stones. The common people prefer the whole wheat flour made from this mixture because it has more taste, and they can feel that they are eating something. They do not understand manipulating the finer grades of flour, which are used almost entirely by the bakers, who make bread and cakes for the richer people in the cities.

It would probably take some years to educate the common people up to the standard of American flour. The average price of the flour most used here is about one-third the price of low-grade American flour. It is made from a mixture of various grades of spring and winter wheat.

Within recent years mills with machinery have been introduced for making the fine flour. It is made in three grades of fineness. The average prices are about $1.20 per barrel for the lowest grade, $1.30 for the medium, and $1.50 for the finest. The two lower grades are those most used.

Last year the crops were very poor, and the present prices are about three times the average price—$3, $4, $5, and $6.

IMPORTS OF FLOUR AND WHEAT.

I think no American flour or wheat has been imported into any part of this consular district during the last three years. Occasionally, when there is a failure of the crops in the interior and the charges for transportation are high, a small amount of Russian flour is imported at Samsoun. I do not know the quantity. It varies with the temporary demand, and does not occur unless the price of native flour reaches about $3.70 per barrel.

EXCHANGE AND SHIPPING FACILITIES.

There are no public banks in the interior and no established facilities for monetary exchange.

There is no direct communication with the United States. There is a steamship service from Marseilles and Havre to Samsoun and Trebizonde, whose harbors are poor, with no docks.

TRADE OUTLOOK.

The poverty and ignorance of the people, the fact that under proper conditions this country raises sufficient wheat for its needs, the absence of railroads, and the absence of products to take in exchange are obstacles to the extension of trade in American flour in this part of Turkey, and, in my opinion, the prospects for the extension of trade in American flour here are very poor.

M. A. JEWETT,
Consul.

SIVAS, *January 20, 1894.*

SYRIA.

STANDARD OF LIVING.

Cereals form the standard articles of food in Syria, the soil of all this region being very fertile and abundantly productive of grains, especially wheat. The standard articles of food among the city residents are wheat flour and rice, and among the country people, or "fellaheen," barley and maize flour, lentils, "bourgul" (crushed wheat), and beans.

These constitute the main elements of daily food, and the special object of the majority of Syrians being to obtain and use the cheapest kind of flour, there is every reason to believe that they would be willing and ready to eat American flour if it could be put down in this market at a price to compete with the native wheat, barley, or maize flour.

QUALITY OF FLOUR USED.

Wheat flour of middling grade is the quality most used in Syria, owing to the fact that meat and vegetables are only secondary articles of diet among the middle and lower classes of society. Wheat flour constitutes, in consequence, the main food substance throughout this land.

IMPORTS OF FLOUR AND WHEAT.

No American wheat or wheat flour was imported into this district during the years under consideration, except such small quantities as were brought by American missionaries for their own use.

In the absence of any official statistical bureau in Beirut or of any custom-house records open to inspection, it is impossible to correctly report the quantity of wheat flour imported from other countries, but the following

figures will give an approximate estimate of the quantity of wheat flour imported from the rich grain-growing section of the Hauran and other inland districts by way of Damascus, and also from foreign ports:

Year.	From—	
	Hauran.	Adalia.
	Pounds.	*Pounds.*
1891	18,887,000	700,000
1892	25,473,000	1,600,000
1893	21,086,000	1,300,000
Total	65,446,000	3,600,000

In this connection it is well to understand that the city of Damascus, which is about 51 English miles from Beirut, and in this consular district, is the great granary market for all the wheat produced in the province of the Hauran, where the soil is so fertile that it easily produces from fifty to one hundred fold in crops, and where only a small portion of the immense wheat territory is planted. This country is now being opened up by railroads, and the present production and future promise of this vast and rich territory stand as a barrier against outside or foreign products. This native wheat is ground in Damascus and brought to Beirut in the wagons of the French Diligence Company and also on the backs of camels, mules, and donkeys.

The quantity of wheat imported from other countries in the three years past may be estimated approximately as follows:

From—	1891.	1892.	1893.
	Pounds.	*Pounds.*	*Pounds.*
Hauran and Damascus	190,000	800,000	600,000
Anatolia and Syrian coast ports	16,768,000	15,662,000	13,739,000
Total	16,888,000	16,462,000	14,339,000

DUTIES.

The import duty on American wheat and wheat flour, as well as on wheat and wheat flour imported from other foreign countries into Syria is 8 per cent ad valorem, while the wheat and wheat flour imported from a Turkish district is subjected to no customs duty whatever.

EXCHANGE AND SHIPPING FACILITIES.

The best and safest facilities for monetary exchange in this market are furnished by the Imperial Ottoman Bank, and the usual method is by purchase of checks or sight drafts, payable at various terms, on its branch in London. These drafts can be easily negotiated anywhere in the United States. There are also other banks of good standing and high reputation through which exchanges can be made with nearly as much security and equal facility as with the Imperial Ottoman Bank.

The Faber line of steamers via Havre and Marseilles, as well as the Messageries Maritimes de France and the English Knott's Prince steamers via London and Liverpool secure advantageous shipping facilities from the United States to Syria.

OBSTACLES TO TRADE.

The chief obstacles in the way of the extension of trade in American flour in this section of the Turkish Empire consist, first, in the production of this article in the country itself considerably beyond the consumption of the Syrian people, and, secondly, in the absence of a direct line of steamers from the United States to the coast of Syria, the consequence being that freight and insurance run up to a figure which almost excludes the possibility of competing with the other countries which supply this market with the foreign wheat flour used by the inhabitants. The reason why the quantity of foreign flour consumed here is so small lies in the fact that the Syrians are generally satisfied with the cheap native flour, and that only the European and American colonists use the dearer foreign flour for pastry and special cooking purposes.

TRADE OUTLOOK.

The prospects for doing a more extensive business in American flour are, for the present at least, not very promising; but they may and will improve with increasing immigration of Europeans and Americans into this country, as well as from the increasing tendency shown by well-to-do natives to adopt the delicacies of the American and French cuisine.

THOMAS R. GIBSON,
Consul.

BEIRUT, *February 24, 1893.*

ALGERIA.

STANDARD OF LIVING.

The standard of living in this consular district is both high and low—high in the cities, where the population is mostly European, and very low in the interior, where the native element predominates.

In Algiers the conditions of living are exceedingly costly. In the cities and towns the best quality of bread is eaten, and the finest brand of flour required. In the interior the natives feed on flour of roasted barley, mixed with a little water ("rouina"), or are contented with a sort of pancake not over half an inch thick made of grain roughly ground between two stones.

IMPORTS OF FLOUR AND WHEAT.

No American flour has been imported into Algeria during the years 1891–'93, and, in fact, it is unknown in this district. The imports from other countries, chiefly from France (Marseilles), in 1891, 1892, and 1893 were:

	Kilograms.
1891	5,263,000
1892	13,049,200
1893	15,095,900

The imports of wheat were:

Year.	United States.	Other countries.
	Kilograms.	*Kilograms.*
1891	.....	12,919,600
1892	.....	5,362,900
1893	5,634,100	9,815,200

EXCHANGE AND SHIPPING FACILITIES.

The facilities for monetary exchange are good, the Banque de l'Algérie, the Crédit Foncier et Agricole d'Algérie, the Crédit Lyonnais, the Crédit Algérien, and the Compagnie Algérienne having branch offices throughout the country and numerous correspondents abroad. American business transactions are, as a rule, carried on through Paris and London, the rate of exchange being slightly higher when drawn on the United States than on Europe.

Shipping facilities with the United States are not good, owing to the lack of direct communication. Except the steamers of the Hamburg Packet Company and North German Lloyd, which call at Algiers twice a month

from November to May, no regular steamship lines ply between the American and Algerian ports. Goods to or from the United States are generally shipped in transit via Marseilles, Havre, Liverpool, London, Antwerp, or Hamburg.

OBSTACLES TO TRADE.

The lack of direct and regular communication has always been, and still is, the greatest obstacle in the way of the extension of trade between the two countries. The expenses of transshipment greatly increase the cost of freight and put the American products at a disadvantage.

Another obstacle of minor importance, but nevertheless worthy of being taken into consideration at present, is the state of the financial market. In most of the eastern wheat-producing countries the rate of exchange is greatly in favor of France, and to a certain extent counterbalances the protective import duty imposed on the staple. Under such circumstances French and Algerian importers are inclined to draw their supplies from those markets rather than from the United States, where the rate of exchange is against them.

TRADE OUTLOOK.

It is not likely, in my opinion, that Algeria will ever become a large market for American wheat and flour. The colony is almost self-supporting in that respect and only requires the foreign products when, for some reason or other, the local crop has failed.

CHAS. T. GRELLET,
Consul.

ALGIERS, *May 8, 1894.*

EGYPT.

Egypt is a country offering little scope for the extension of trade in American wheat flour. Egypt is a purely agricultural country, and not only produces wheat and other cereals sufficient for its population of 7,000,000 or 8,000,000, but sends to Europe each year its surplus of breadstuffs, aggregating in value from $1,500,000 to $2,000,000.

The customs returns disclose only exports of wheat flour; but, were grain or any other standard article brought into the country, it would ordinarily pay a duty of 8 per cent on the market value, the same as flour. The import law of Egypt permits the entry of prime necessaries at a reduced rate, or even free of duty; but this arrangement could only operate in the event of famine.

Should shipments of flour be made from the United States to Egyptian ports they would necessarily be in chartered vessels, as there is no direct line of communication between the two countries. Monetary exchange would be accomplished through the medium of London or Paris banking houses.

FREDERIC C. PENFIELD,
Agent and Consul-General.

CAIRO, *January 11, 1894.*

MADAGASCAR.

STANDARD OF LIVING.

The standard of living among the native tribes is most primitive, consisting usually of about 1½ to 2 pounds of rice per adult per diem. To this is added about 2 cents' worth of beef and such greens as pumpkin vine and various kinds of weeds and lentils, of which a stew is made and eaten twice a day. Among the colonials and foreigners the standard of living is the same as in most English and French colonies. All foreigners use wheat flour more or less; the natives but very little. With the latter, however, the price is the main consideration. They are ready and willing to eat anything that is cheap and nutritious.

QUALITY OF FLOUR USED.

The quality of flour used here is very poor indeed, being Bombay flour mainly, with some Australian. Sometimes the two are sold mixed. The result is a musty and dirty looking bread.

IMPORTS OF FLOUR AND WHEAT.

The values of flour importations at this port for the years specified were:

Description.	1891.	1892.	1893.
Bombay	$3,000	$2,850	$3,400
Australian	300	340	584
American	80	80	250
Total	3,380	3,270	4,234

There never has been any importation of wheat from any country into Madagascar, as far as I can ascertain.

DUTIES.

The duty on wheat or wheat flour, regardless of origin, is 10 per cent on the cost price in the country of purchase. This duty is assessed upon the first cost, freight and other charges not being considered as a part of said cost.

EXCHANGE FACILITIES.

The facilities for monetary exchange have lately been curtailed by the liquidation and closing of the New Oriental Bank, a branch of the New Oriental Banking Corporation of London. The entire burden of commercial exchange now rests upon the local branches of the Comptoir National d'Escompte de Paris. This institution is said to have a capital of $16,000,-

000. The local branch here quotes exchange as follows: They will sell sight drafts on Paris, London, and New York (the United States generally) at $2\frac{1}{4}$, $2\frac{3}{5}$, and $2\frac{3}{10}$ per cent premium, and time drafts on the same places for the same premium, less one-half of one per cent for each month of the life of the drafts. They will buy sight drafts on Paris, London, and New York at two-thirds of one per cent discount, and time drafts at the same discount, plus the same discount for each month of the life of the draft.

SHIPPING FACILITIES.

Shipping facilities are gradually growing better. There are now three main steam routes, viz:

(1) New York to Liverpool, via Cunard or White Star lines; Liverpool to Cape Town, via Shaw & Saville line; Cape Town to Tamatave, via Castle line, every 4 weeks.

(2) New York to Cape Town, via Norton & Son's South African line; Cape Town to Tamatave, via Castle line, every 4 weeks.

(3) New York to the Mediterranean, via Marseilles and Brindisi, thence to Tamatave, via Massageries (or Suez) Maritimes line, monthly.

OBSTACLES TO TRADE.

The only obstacles to an extension of the American flour trade are lack of enterprise; French and English competition, the latter especially; and, lastly, but by no means least, the absolute indifference of the only American commercial houses here to any imports from the United States but cottons, called grays, sheetings, shirtings, and a few drills, and some kerosene oil.

TRADE OUTLOOK.

Bombay flour retails here at about $6 per barrel and Australian at $7 to $9 per barrel. Put American flour of good quality in this market at a figure that will enable retailers to cut those prices and it will capture the trade.

English and French colonial houses give 90 days credit to responsible parties—a great consideration to small dealers—while American terms are short time or cash.

I would add that the consumption of flour among the natives at Antananarivo is very much larger than at Tamatave. There is also a large European community at that place, but goods must be conveyed thither (260 miles) on men's shoulders, over a rugged country. Small packets or packages are essential for such mode of conveyance, namely half sacks and quarter barrels.*

EDW. TELFAIR WETTER,
Consul.

TAMATAVE, *April 1, 1894.*

* See "Packing Goods for Export," No. 160, pp. 208–210.

MOZAMBIQUE.

STANDARD OF LIVING.

The standard of living in Mozambique is not high. The great majority of the inhabitants are satisfied if they can procure the necessaries of life without any of its luxuries. The quantity of bread consumed is small, and pastry is rarely seen except in the houses of foreigners.

QUALITY OF FLOUR USED.

The greater part of the flour consumed here comes from Bombay in 200-pound sacks. It is of fairly good quality, somewhat resembling what is called in the United States St. Louis flour, and retails for about $6 per sack. Small quantities are also imported from Austria, France, and Germany, generally for the use of the importers, though occasionally very small lots are sold.

The people are probably ready to eat American flour; but, as the first consideration with them is cheapness, the American flour will have to be sold at prices which will favorably compare with those of the Bombay article.

IMPORTS OF FLOUR AND WHEAT.

No American flour, to my knowledge, has ever been imported here. A few years ago Australian flour was imported to a considerable extent, but the quantity received now is very small.

The total quantity of flour imported into the port of Mozambique from all countries during the past few years may, in the absence of official figures, be safely stated to have been 100 tons per annum. The reason why the import of flour is so small is that rice is the "staff of life" in Mozambique. Rice is cheaper than flour, and probably 80 per cent of the inhabitants live upon it almost exclusively.

Wheat is not imported.

As long as Australia and India produce wheat and furnish a fairly good flour at a low rate, and can secure low freight rates to this coast, they will probably be the principal competitors for the flour trade of east and south-east Africa. The United States are too far away. Given flour at a lower price in the United States than in India, the American product would have to come to Lorenzo Marquez in a sailing vessel, and from there be transshipped to the different coast ports by steamer, or it would go to Cape ports by steamer from New York and be forwarded on to its final destination by an east coast steamer. In either case, by the time it reaches the final port of delivery the charges for freight, transfers, lightering, etc., will have run up to nearly $20 per ton. On the other hand, a "cutch," or Maskat dhow, will bring flour from India for a few dollars per ton.

EXCHANGE AND SHIPPING FACILITIES.

There is but one English bank in this province, and that is situated in Lorenzo Marquez, where it offers excellent facilities for exchange. There are several branches of a Lisbon bank located in the principal ports of the colony, but their rates of exchange are so high that beyond Lisbon dealing with them is out of the question.

TRADE OUTLOOK.

It can not be said that there is much prospect of doing an extensive business in American flour in this province. In the first place there is the price and the cost of transportation to be considered, and, in the second place, there is the small annual consumption—100 tons here, a like quantity in Quilimane, and, perhaps, a little more in Lorenzo Marquez and Beira.

DUTIES.

The duty on flour and wheat from all countries is one cent per pound.

W. STANLEY HOLLIS,
Consul.

MOZAMBIQUE, *March 9, 1894.*

ST. HELENA.

Rice is the important article of food in St. Helena, although flour is used by those who can afford it. The quality most used is the "Household" or "Family" brand.

The imports of flour into St. Helena during the years ending June 30, 1891–'93, were as follows.

Year.	American.		Australian.	
	Quantity.	Value.	Quantity.	Value.
	Barrels.		*Sacks.*	
1891	316	$2,415	2,153	$13,335
1892	380	2,735	1,680	11,350
1893	978	6,275	2,574	13,805
Total	1,674	11,425	6,407	38,490

There are no wheat imports into this island.

H. CHRISTIAN BORSTEL,
Consul.

ST. HELENA, *January 23, 1894.*

SIERRA LEONE.

STANDARD OF LIVING.

The standard of living is not high. The people, however, are becoming used to American flour. The best quality of flour is used when it can be obtained.

IMPORTS OF AMERICAN FLOUR.

The imports of American flour during the years ending June 30, 1891, 1892, and 1893, were 6,528, 7,200, and 11,500 barrels, respectively. No wheat flour is imported from any other country than the United States.

Wheat "cracked" or "crushed" only is used, and in limited quantities. Whatever is used is American.

DUTIES.

Import duties are 7½ per cent ad valorem, except on articles specially exempted, and "specific."

EXCHANGE AND SHIPPING FACILITIES.

There is one banking house here—recently opened. Exchange on the United States can be obtained at 4 per cent in English gold, or $4.80 for $5 in American gold. The English pound sterling in this colony is $4.80 in American gold dollars.

Direct shipping is by sailing vessels from New York and Boston and indirect by steamer via Liverpool.

TRADE OUTLOOK.

There are no obstacles in the way of extending trade in American flour here. In my opinion the prospect is good for doing a more extensive business, not only in flour, but in all other American food stuffs, if properly introduced and sold at reasonable prices.

BOLDING BOWSER,
Consul.

SIERRA LEONE, *January 17, 1894.*

SOUTH AFRICA.

STANDARD OF LIVING.

It is impossible to gauge the standard of living in this consular district, which is very large, comprising four states, viz, Cape Colony, Natal, Orange Free State, and the South African Republic—the population being composed of several distinct races, viz, white, Malay, negroes, Hottentots, etc. So far as the white and most of the Malay population is concerned, I should say the standard of living is well up with the best American communities, and the people are ready to eat American flour because it is the best.

QUALITY OF FLOUR USED.

The quality of flour most used depends upon the nationality of the particular section using it; a fair average would be a medium grade.

IMPORTS OF FLOUR AND WHEAT.

I am unable to obtain statistics for fiscal years, but the following statement shows the imports of flour and wheat into Cape Colony for the calendar years 1891–'93:

Whence imported.	1891.	1892.	1893.
Wheat flour.	*Pounds.*	*Pounds.*	*Pounds.*
United States	1,120,360	.....	4,455,847
All other countries	52,854,404	33,795,469	29,205,016
Total	53,974,764	33,795,469	33,660,863
Wheat.			
United States	3,708,853	2,257,294	4,495,467
All other countries	101,360	5,580	197,008
Total	3,810,213	2,262,874	4,692,475

Most of the imports into the Orange Free State pass through the ports of Cape Colony, and are, doubtless, included in the foregoing figures, there being a customs union in vogue here; but I give herewith the statistics furnished by our agent, Mr. Landgraf, showing the imports of flour into that country for the years under consideration, viz: In 1891, 587,520 pounds; in 1892, 583,499 pounds; and in 1893, 422,219 pounds. No record is kept of the country of origin.

DUTIES.

The duties on flour and wheat—the same on the products of all countries—are as follows: Wheat, 2*s.* per 100 pounds; wheat flour, 5*s.* ($1.21) per 100 pounds.

EXCHANGE AND SHIPPING FACILITIES.

The facilities for monetary exchange with all the states in this district are excellent in every way.

Shipments can be made by sailing vessels or by a direct line of steamships from New York. Goods for the interior are landed at Cape Town, Port Elizabeth, East London, or Natal, and transported thence by rail to destination.

OBSTACLES TO TRADE.

There are no obstacles in the way of extending the trade in American flour here.

TRADE OUTLOOK.

The prospects for doing a more extensive trade in parts of South Africa are excellent. The country is growing rapidly. Mining interests are being rapidly and profitably developed, thus furnishing a large community of consumers.

Besides this, South Africa has large quantities of wool for export, and our tariff on wool once removed, larger numbers of vessels must soon be employed in carrying the crop to the United States, and these vessels in turn should furnish cheaper water rates for our flour to this section.

Mr. Landgraf, consular agent at Bloemfontein, also thinks that the prospects are good for building up trade in the Orange Free State, provided we can meet the selling price of Australian flour in that market, which is from $4.20 to $5 per 100 pounds.

All things considered, I believe that it would well repay our shippers of wheat and flour to make a strong bid for this market.

C. H. BENEDICT,
Consul.

CAPE TOWN, *March 12, 1894.*

ZANZIBAR.

STANDARD OF LIVING.

Zanzibar being inhabited by people of different nationalities, religions, customs, etc., no one standard of living can apply thereto. The native Swahili population has one standard, and the Arabs, Hindus, Banyans, Parsees, and white populations have each a different standard. The Swahilis do not eat wheat flour—they eat flour made from the root of the muhogo, and also maize and corn. The other eastern nationalities use wheat flour, but the quantity consumed is very small in proportion to the population, rice being the staple article of food. The people would be ready to eat American flour could they obtain it as cheaply as flour imported from India and Europe.

QUALITY OF FLOUR USED.

The grades of flour consumed are chiefly of medium and cheap qualities.

IMPORTS OF FLOUR AND WHEAT.

No flour is imported from the United States. No record of imports and exports was kept previous to 1892. In 1892 there were imported from Bombay 13,950 bags and 2,000 barrels from Europe; in 1893, 10,592 bags from Bombay and 1,857 barrels from Europe.

The record of wheat has been kept under the general heading of "grain." It is estimated that 2,500 bags came from Bombay in 1892, and about the same amount in 1893.

No duty is charged on flour and wheat.

EXCHANGE AND SHIPPING FACILITIES.

Monetary facilities are of the best with European countries, India, and Arabia. American business is done through London.

Four or five sailing vessels arrive each year from the United States. Shipments can be made by steamer to Aden, there transshipping for Zanzibar; or to Cape Town, and there transshipping for Zanzibar; or via Marseilles, Hamburg, or London.

OBSTACLES TO TRADE.

The price at which flour would have to be sold to cover expenses and realize any profit is the greatest obstacle to American trade, and the prospects for the extension of the trade in American flour are not good, owing to the cheap supplies from other countries.

J. W. ALLEN,
Acting Consul.

ZANZIBAR, *March 27, 1894.*

AUSTRALASIA.

NEW SOUTH WALES.

NEWCASTLE.

STANDARD OF LIVING.

The standard of living in New South Wales is high. The average annual consumption of wheat per capita is 6½ bushels. The total consumption of wheat in the colony in 1893 was 7,125,000 bushels, exclusive of seed wheat. Of this total, the harvest of the colony supplied 6,150,000 bushels and the balance was imported from the neighboring colonies, principally from Victoria. The imports from Victoria in 1892 amounted to 700,382 bushels, valued at $701,613.

The quantities of the principal articles of diet annually required by each inhabitant of this colony are estimated, in pounds avoirdupois, as follows: Flour, 270; rice, 11.8; oatmeal, 4.2; beef, 176.8; mutton, 104.8; pork, 9.5; potatoes, 206.5; sugar, 93.5; butter, 16.7; cheese, 5.2; tea, 7.2; coffee, 11.5.

QUALITY OF FLOUR USED.

High grade flours are used, and the best qualities come from the adjacent colonies, chiefly from the colony of Victoria.

IMPORTS OF FLOUR AND WHEAT.

The imports of flour and wheat into New Zealand (all from the adjacent colonies save the small lots from the United States) were:

Year.	Flour.		Wheat.	
	From United States.	From other countries.	From United States.	From other countries.
	Cwts.	*Cwts.*	*Bushels.*	*Bushels.*
1892	3,840	1,275,980	13,985	886,094
1892	1,280	974,960	.....	928,882
1893	600	535,680	.....	471,768

TRADE OUTLOOK.

Whatever wheat and flour may be required in New South Wales, in addition to its home product, can be more advantageously supplied by the neighboring colonies than by the United States; hence there are no prospects for any business in American flour in this colony.

STEWART KEIGHTLEY,
Vice-Commercial Agent.

NEWCASTLE, *March 17, 1894.*

SYDNEY.

STANDARD OF LIVING.

The standard of living in this district is high. The cost of food and beverages other than intoxicants for the year 1893, according to Mr. Coghlan, Government statistician, was £17,228,300 ($83,832,908) for the 1,212,230 people, or $69.15 per capita.

The cost per capita in the principal countries is given as follows: United Kingdom, $71.18; France, $61.10; Belgium, $60.72; Germany, $54.60; Holland, $52; United States, $49.38; Austria, $39.40; Italy, $35.20; and Russia, $26. This indicates the plane of living in New South Wales, and, when we consider that 42 per cent of the total food cost is for bread and meat, the former being as cheap here as in any other country and the latter much cheaper, it tells more strongly in favor of this colony.

The annual consumption for each person is, according to Mr. Coghlan, as follows:

Articles.	Quantity.	Articles.	Quantity.
	Pounds.		*Pounds.*
Wheat flour	270	Potatoes	206.5
Rice	11.8	Sugar	93.5
Oatmeal	4.2	Butter	16.7
Meat:		Cheese	5.2
Beef	176.8	Tea	7.8
Mutton	104.8	Coffee	11.5
Pork	9.5		

The table is extraordinary in the quantities of meats, sugar, and tea, and, on the whole, probably shows an average higher rate of living than that of any other people. This, it would seem, is sufficient answer to the second part of the first interrogatory—the people are "ready to eat American flour" if price and quality are satisfactory.

QUALITY OF FLOUR USED.

Usually the best quality of wheat flour is used. The uniformity is noticeable. The bread for the richest is of the same material and usually of the same make as the bread of the penny soup house.

IMPORTS OF FLOUR AND WHEAT.

I find by Mr. Coghlan's calculations, which are official, that the United States furnished a very small part of the total imports of flour during the calendar years 1891–'93, but we were the only really "foreign" country from which any was imported, the deficiency coming chiefly from Victoria and South Australia.

The details of these imports are as follows:

Whence imported—	1891.	1892.	1893.
Flour.	*Cwts.*	*Cwts.*	*Cwts.*
United States	3,840	1,280	600
Victoria	690,980	618,560	(*)
South Australia	551,680	311,520	(*)
New Zealand	32,620	32,620	(*)
Queensland	760	2,280	(*)
Total flour	1,279,820	†976,140	536,280
Wheat.	*Bushels.*	*Bushels.*	*Bushels.*
United States	13,985	2,510	.....
Neighboring colonies	872,089	928,892	471,788
Total wheat	886,074	931,402	471,788

*Not available. †The details fall short (9,880 cwts.) of making up the total.

EXCHANGE AND SHIPPING FACILITIES.

Exchange facilities are as convenient as in any country.

There are two steamship lines making monthly trips from the Pacific coast—one from San Francisco and the other from Vancouver—which furnish convenient transportation. Sailing ships of good class are always ready to receive charter. Freights are ruling low.

OBSTACLES TO TRADE.

The obstacles to trade can be more clearly answered by a brief review of the wheat industry of this country.

While Australia can not be regarded as a great wheat country, as the average yield is below the average of the wheat-producing countries of the world, yet, as the average of New South Wales is 13.2 bushels per acre, against 11.7 bushels for the United States, it promises to take a leading place in this industry when fully developed. The quality of the wheat produced is good, and its production has increased steadily as follows:

Year.	Area.	Yield.
	Acres.	*Bushels.*
1863	108,133	1,054,954
1873	177,555	2,898,463
1883	247,360	4,042,395
1893	452,921	6,817,457

While this shows an important growth in the production of wheat, the increase has not materially gained on the population, so, relatively, production and consumption has changed but little in the four decades.

Mr. Coghlan tells us that the 1,212,230 people of New South Wales consumed, exclusive of seed, 6.5 bushels per capita, or a total of 7,879,495 bushels, and that the crop of 1893, as above shown, was 6,817,457 bushels, leaving a deficiency of 1,062,038, exclusive of seed, to be made up by

importations. If we assume that the acreage this year is 500,000 acres, an increase of nearly 50,000 acres, and allow 1½ bushels per acre, or 750,000 bushels for seed, it would raise the deficiency to 1,812,038 of wheat or its equivalent in flour.

From what source this deficiency will be drawn depends largely upon the competitive power of the exporting countries.

I have no reliable statistics from the other colonies later than 1891, but find that in that year three of the "sister colonies" had an available surplus of 14,513,000 bushels, to wit:

	Bushels.
Victoria	3,804,000
South Australia	7,900,000
New Zealand	2,809,000

This, after supplying the whole deficiency of Australasia, gave a clear surplus of 9,445,000 bushels to be thrown on the markets of the world.

I do not know whether the production of wheat has increased in those colonies, but the surplus must be equal to several times the deficiency of New South Wales.

These countries lie close to this colony, South Australia joining on the west and Victoria on the south. Thus it will be seen that the wheat-raisers of Victoria and South Australia have an advantage of the wheat-raisers in the United States by at least 7,000 miles in transportation, as the average overland haul in the United States is longer to tide water than the overland haul from these colonies to New South Wales.

While wheat can be produced at a lower cost in the United States than in Australia, I doubt if the difference in the cost of production will equal the difference in the cost of transportation. At present I am of opinion that wheat could be shipped from Puget Sound or the Columbia for 18*s.* or 20*s.* per ton and from San Francisco for 16*s.* per ton. This would be from 12 to 15 cents per bushel, an obstacle too great to be overcome.

Wheat is now worth 64 cents per bushel and flour $1.66 per 100 pounds in Sydney.

With flour, the case does not materially vary. The mills in Australia are of modern make, are numerous, and equal to more than the present demand, so I see no hope for increasing our trade in these commodities in this country. There are seventy flour mills in New South Wales, with a total daily capacity of 620 tons.

One point further: There are very strong probabilities that the near future will see the colonies either federated or with a customs union, and this will place our people at a further disadvantage in these markets.

GEO. W. BELL,
Consul.

SYDNEY, *April 10, 1894.*

NEW ZEALAND.

STANDARD OF LIVING.

The standard of living in New Zealand is high as compared with that of many other countries. This is largely due to the salubrity of the climate and the productiveness of the soil. All kinds of cereals grow in abundance; in fact, the Australian colonies have, to a great extent, to depend on New Zealand for a considerable proportion of their breadstuffs, especially when they have, as is often the case, indifferent harvests. The productiveness of the soil is such as to make the standard of living very high in quality and to cheapen the cost. This is particularly noticeable when the small amount of real poverty prevailing here in proportion to population is compared with that which obtains in other countries. Meat is cheap because of the sparseness of population and the large areas of land used only for grazing purposes. The soil being rich and the climate very mild, the people are not exposed to extremes of heat and cold, a condition which largely contributes to the happiness of their daily existence.

The following rates of wages paid here to those engaged in the various occupations enumerated may be taken as a good indication of the comparative comforts enjoyed by labor when we take into consideration the cheapness of agricultural produce and also that eight hours (except in the case of farm laborers, house servants, and agriculturists generally) constitute a day's work throughout New Zealand:

Occupation.	Per day, without board.	Occupation.	Per day, without board.
Agriculturists:		Artisans—Continued.	
Farm laborers (per week, with board, $6)	$1.46	Shipwrights	$2.80
Plowmen (per week, with board, $7)	1.82	Plumbers	2.80
Reapers (per acre,* with board, $1.50)	2.50	Painters	2.20
Artisans:		Saddlers	2.18
Masons	2.50	Shoemakers	2.19
Plasterers	2.50	Coopers	2.06
Bricklayers	2.67	Watchmakers	2.90
Carpenters	2.50	General laborers	1.70
Smiths	2.40	Miners	2.06
Wheelwrights	2.40	Seamen	†31.62

*Contract price. †Per month, with board.

Food prices.

Wheat	per bushel of 60 pounds...	$0.54
Barley	per bushel of 47 pounds...	.73
Oats	per bushel of 40 pounds...	.54
Maize	per bushel of 56 pounds...	.54
Bran	per bushel of 20 pounds...	.24
Flour	per bag of 50 pounds...	1.03
Do	per ton of 2,000 pounds...	$48.65 to 50.00

Bread	per 4-pound loaf	$0.12 to $0.14
Beef	per pound	.06 to .11
Mutton	do	.04 to .10
Pork	do	.09 to .12
Lamb	do	.10 to .12

IMPORTS OF FLOUR.

About twenty years ago there was quite a trade in American flour, but now there is not a pound of flour imported from any country for consumption here. This, of course, is in consequence of the abundance and good quality of the domestic article.

DUTIES.

There is a duty of 18 cents on each 100 pounds of unmanufactured grain and pulse of every kind and 24 cents on each 100 pounds of manufactured grain, such as flour, etc., imported from abroad. There is no discrimination made in favor of any country in the matter of duty on wheat or flour at present, but there is a strong effort being made just now to create a feeling favorable to intercolonial free trade. This sentiment, although it has found able champions in many of the colonies, has not as yet assumed any definite shape, nor is it likely to do so until the federation of the several colonies of Australia is an accomplished fact.

SHIPPING FACILITIES.

The facilities for shipping from ports in the United States to New Zealand are generally favorable. Throughout last year an average of one sailing vessel a month arrived in New Zealand waters from New York, and a steamer every four weeks from San Francisco. It will be seen by the number of vessels engaged in the freight and passenger trade between this country and ports in the United States that the shipping facilities are ample at present. I regret to say, however, that there are more vessels thus far this year in the American-New Zealand trade than can find profitable employment. There are few passengers traveling between the colonies and the United States. The falling off in this respect is, of course, largely attributable to, if it is not altogether caused by, the financial crisis which has affected and is still affecting the Australian colonies—New Zealand alone excepted. There is still a good trade between New Zealand and the United States, but since flax and kauri gum, which constitute the principal articles of export to the United States have fallen, not only in price, but in demand, it is very difficult to find return cargoes for vessels engaged in this trade. Nor is there any chance for improvement in the situation until business generally assumes a more satisfactory aspect in the United States.

While on the subject of shipping facilities, it may be proper to note here that it is more than probable the present mail service, which is performed by an American line, may be withdrawn at the expiration of the existing con-

tract with the New Zealand Government, which terminates in November next. The colonies generally are disposed to favor the Vancouver route, partly from patriotic motives, but largely in consequence of the indifference manifested by our people as to the fate of that long-struggling enterprise, the San Francisco line. That the San Francisco route is the shorter of the two, and necessarily the most popular, goes without saying, but even these natural advantages will not save it unless greater monetary assistance is forthcoming soon.

The Canadian Government subsidizes the Vancouver route to the extent of £25,000 annually, and the Government of New South Wales gives £10,000. Victoria is prepared to contribute also, upon condition that the vessels call at Melbourne, which no doubt they will do in due time. The Imperial Government is in full sympathy with the new undertaking, and is constantly being importuned for assistance by the friends of the new line, and with every prospect of success. It therefore requires no great foresight to see that, with the reduction of fares and freights, which is the inevitable outcome of opposition, coupled with all the other elements that are arrayed against the present American line, it is only a matter of time when it may be compelled to abandon the struggle.

It is well known that the Canadian Pacific people are the prime movers in the establishment of this new line. It is, of course, quite clear what their objects are. They speak out frankly, or at least their agents do, and say that they are bidding for the Pacific passenger traffic—not for a share of it, but for the whole.

This avowal on the part of the Canadian Pacific Railway Company ought to open our eyes to the great danger that threatens our commerce in the Pacific. Should the Australasian trade, including also Samoa, Fiji, and, perhaps, a large or at least a considerable percentage of the Hawaiian trade be diverted to Vancouver, it will mean a serious loss to San Francisco as a commercial center, and also to the many railroads leading from the Pacific coast to the Eastern States.

New Zealand alone of all the colonies is the only one that has always favored the San Francisco route. But even this colony, I regret to say, is now disposed to favor a connection at Fiji with the Vancouver line, which means, of course, that it will discontinue the subsidy of about £13,000 per annum, which it now pays to the San Francisco line. I have of late observed the gradual development of this adverse sentiment against the San Francisco service. The president of the Auckland Chamber of Commerce, in the course of his recent annual address, recommended the establishment of a fast service to connect with the Vancouver route at Fiji, which, in substance, meant the abandonment of the San Francisco line. This recommendation was the outcome of a feeling among the people that they had been contributing for years to the American line without receiving adequate returns. In other words, they paid dearly for the maintenance of the line, while the people of the United States reaped the benefit.

The trade between these colonies and the United States can not be ignored, as it is increasing year by year and is capable of great expansion, if we only make an effort to cultivate their tastes and learn their necessities, and I know of no surer or better way to do this than to establish frequent, satisfactory, and uninterrupted communication.

That the great railway lines and the commercial interests of the Pacific coast generally must sustain a serious loss, should the present mail service be abandoned, admits of no argument. I therefore feel that I am justified in referring at length to this subject, hoping it may serve as a timely warning, and thereby avert the dangers that threaten the existence of the San Francisco-Australian mail service.

OBSTACLES TO TRADE.

I see no obstacles in the way of introducing American flour into New Zealand except in the matter of price. To begin with, there is a duty of $4.86 per ton of 2,000 pounds on flour and the same on wheat. Last year the wholesale price of flour was from $48.65 to $50. Taking the latter figure as a basis, and adding the duty of $4.86 and $7.50 freight from San Francisco by steamer, we have a total of $62.36. From New York, by sailing vessel, the freight would be $15 per ton, which would increase the cost from $62.36 to $69.86. An average passage from New York to New Zealand is about one hundred days, and from San Francisco to Auckland by steamer twenty days.

The price of wheat in Auckland last year was 60 cents per bushel of 60 pounds, while this year it has fallen to 54 cents per bushel.

In view of the above figures, I regret I can not offer any practical suggestions which might help to successfully introduce our flour and enable it to compete with the domestic article. The difficulty increases when the original cost, freight, commission, duty, insurance, etc., are all considered.

JNO. D. CONNOLLY,
Consul.

AUCKLAND, *March 1, 1894.*

VICTORIA.

IMPORTS OF FLOUR AND WHEAT.

The colony of Victoria is, comparatively speaking, a large wheat-growing country, producing wheat and manufacturing flour far in excess of home requirements, which, together with the fact of the existence of such a prohibitive import duty as 70 cents and $1.21 per cental on wheat and flour, respectively, no matter whence imported, shows the impossibility of the importation of

For fusing iron, steel, or other metals for casting purposes, the advantages claimed are rapidity of operation, improved quality in the castings, susceptibility of continuous working, and—even where steam power is used to generate the current—an economy of fuel which is estimated at from 30 to 50 per cent of the coal used in smelting by the ordinary method. From what has been already stated, it would appear that the practical limit of capacity will be a furnace or fusion channel from 36 to 40 feet in length and capable of containing at one charge about 1½ tons of metal. By working such a furnace with a current of 30,000 ampères and 50 volts—which would represent a force of about 2,000-horse power, or somewhat less than the energy employed in the reduction of aluminium at Neuhausen—the entire charge of 3,000 pounds can be fused and run into castings within a quarter of an hour. By repeating the operation as rapidly as the charge can be replaced and smelted, a single furnace of this capacity can be made to turn out in a working day a large quantity of castings, and when motive power for generating the current is supplied by water, or even by steam made with a low, cheap quality of coal, the economy of the process over present methods would seem to be obvious.

Comparisons have been made with the well-known results of making iron and steel castings by smelting in a Siemens-Martin regenerative furnace, where from 1,000 to 1,400 pounds of coal are burned to smelt 2,000 pounds of iron. Assuming that water power for the Taussig process is not available, and that the dynamo and air pumps must be worked by steam, it is claimed that the same result, viz, the smelting of 2,000 pounds of iron or steel, can be effected by the consumption of from 720 to 800 pounds of steam coal—an economy of 50 per cent in the use of fuel. This economy is still greater if, instead of the foregoing comparison with smelting in a Siemens regenerator, we consider the treatment of steel in crucibles, where 1,200 pounds of the best coal is consumed for each 1,000 pounds of steel, and this proportion is increased to 1,500 or even 1,600 pounds when the coal used is of inferior quality and yields a large percentage of ash. It is, therefore, confidently asserted by experts who have examined this new electrical (vacuum) smelting process that it will secure a saving of more than half the fuel that is now required for the fusion of steel in crucibles, and that the saving would be proportionately greater under conditions which would enable the current to be generated by water power.

While the preliminary experiments—which have been conducted with a current of 18 to 20 horse power—have been brilliantly successful, with resulting products of high and uniform quality, the practical application of this new process on an industrial scale has yet to be made. Works have been built at Copenhagen, where it will soon be put into practical operation, and a syndicate has been organized for a similar purpose in southern France. The first use of the system will be in the production of small castings of iron and steel, in which high quality, smoothness of surface, and freedom from flaws and air holes are especially important. In the earlier experiments,

Exports of wheat from 1888 to 1892.

Whither exported.	1888.	1889.	1890.	1891.	1892.
Australasian colonies:	*Centals.*	*Centals.*	*Centals.*	*Centals.*	*Centals.*
New South Wales	245,390	208,072	49,492	316,075	640,910
Queensland	2,562	94	288	26,178	32,620
South Australia	13,996	7,949	1,204	49,578	325,600
Western Australia	69	5	29	95	27,202
Tasmania	7,526	365	6,802	30,556	22,899
New Zealand	250	.....	.....	.....	.....
Fiji	.....	.....	.....	4	.....
United Kingdom	1,206,438	14,420	295,460	1,488,985	911,571
Belgium	.....	.....	.....	4,947	.....
France	5,540	.....	.....	23,900	1,000
Mauritius	.....	.....	6,555	.....	.....
Cape Colony	.....	.....	.....	.....	17,389
Réunion	.....	.....	1,000	13,440	1,646
Guam	106,403	13,556	.....	893,186	238,518
Total	1,588,173	244,461	360,829	2,846,944	2,219,355

VICTORIAN WHEAT AND FLOUR PRODUCTION.

The following table shows the quantity of wheat grown and flour made in the colony during the five fiscal years 1889–'93:

Year.	Wheat.	Flour.
	Bushels.	*Tons.*
1889	8,647,709	184,056
1890	11,495,720	146,828
1891	12,751,295	209,773
1892	13,679,268	186,935
1893	14,814,645	187,908

As the statistics for the fiscal year 1894 are not yet available, the total yield of wheat must be given approximately, and I am authoritatively informed that it amounts to 14,000,000 bushels, being one of the most bountiful the colony has yet experienced. Of this amount, 6,500,000 bushels will be required for an average population of 1,180,000 and 1,500,000 bushels for seed. The total requirements are, therefore, 8,000,000 bushels, which, being deducted from the total yield, viz, 14,000,000 bushels, leaves 6,000,000 bushels available for export. In addition, a considerable quantity of old wheat is still held, and it may be concluded that the surplus of 1894 available for export will be over 7,000,000 bushels.

OBSTACLES TO TRADE.

The colony manufactures all the flour required for home consumption, which is sold in the local markets for far less than that of the United States could be when freight and duty are added.

The flour made in the colony is made by the roller process, and grades about the same as the best Minnesota.

TRADE OUTLOOK.

Although every facility is afforded as regards transportation, monetary exchange, etc., it is obvious that the prospects of the United States extending her market for wheat flour in this direction are anything but encouraging.

DANIEL W. MARATTA,
Consul-General.

MELBOURNE, *March 1, 1894.*

POLYNESIA.

HAWAIIAN ISLANDS.

STANDARD OF LIVING.

The standard of living among the whites here and the better class of natives is very high.

QUALITY OF FLOUR USED.

There are two grades of flour used here—first and second. About twice the quantity of the first grade is used as compared with the second.

IMPORTS OF FLOUR AND WHEAT.

The quantities of American flour imported during the calendar year 1891 were 251,061 quarter sacks, 2,962 half sacks, 2,500 pounds, and 20 cases; in 1892, 210,188 quarter sacks, 1,992 half sacks, and 40 cases; and during the year 1893, 199,244 quarter sacks, 1,985 half sacks, 45 cases, and 100 barrels.

In 1891 there were imported 879,183 pounds and 342 sacks of whole wheat, and 11,150 pounds and 12 cases of cracked wheat; in 1892, 750,283 pounds and 451 sacks of whole wheat, and 7,400 pounds and 9 cases of cracked wheat; and in 1893, 597,373 pounds and 867 sacks of whole wheat, and 7,100 pounds, 6 cases, and 5 sacks of cracked wheat.

Neither flour nor wheat was imported except from the United States during the periods named.

DUTY AND EXCHANGE.

There is no import duty on American flour or wheat. The import duty on wheat flour and wheat from other countries is 10 per cent.

The facilities for monetary exchange are good.

ELLIS MILLS,
Consul-General.

HONOLULU, *April 30, 1894.*

NEW CALEDONIA.

STANDARD OF LIVING.

The standard of living in New Caledonia is equal to that which prevails in France, and is on the French style.

American flour would find a fair market in this district if it could be bought at the same price as Australian flour.

QUALITY OF FLOUR USED.

The civil population use only the first quality of flour. A household quality is consumed by those in the Government service, viz, the troops, subsidized employés, and prisoners.

IMPORTS OF FLOUR AND WHEAT.

No American flour has ever been imported into this colony. Australian flour has held the market for at least twenty years. No American wheat has ever been imported into the colony.

The quantities of wheat flour imported from the Australian colonies were: In 1891, 3,795 tons, valued at $183,282; in 1892, 4,093 tons, valued at $236,996.

There was no wheat imported in 1891 or 1892.

There are as yet no statistics published for 1893. A flour mill was erected in Nouméa in 1892, and began operating in January, 1893. The quantity of Australian wheat imported by this mill in 1893 was about 5,000 tons.

DUTIES AND PRICES.

The duty on wheat or flour from all countries, including France, is an ad valorem duty of 4 per cent on original invoices and freights. The present price of best prime milling wheat in Australia is 58 cents per bushel, free one board, sacks counted as wheat.

OBSTACLES TO TRADE.

Freight from Victoria and South Australia is $3.12 per ton of 2,240 pounds. The wheat market is weak, and a rise can not be looked for within six months at least, and if it reaches 66 cents a bushel at the end of the year it will be surprising.

South Australia and Victoria have very large surpluses, while New South Wales will require to import only 1,000,000 bushels this year, as against about 2,500,000 bushels in 1893, and will probably be self-supporting next year. New Zealand is a very large exporter. To send American flour or wheat to this market prices must be cut down and very cheap freights secured.

The consumption in New Caledonia does not exceed 500 tons per month. Instead of sending large quantities at one time it would be better to arrange for a passing ship to drop part cargo.

The distance is the great obstacle in the way of the extension of trade between the United States and this colony.

TRADE OUTLOOK.

In the absence of direct communication, it will always be impossible for the importers of this colony to order wheat or flour from the United States, but should offers come from American exporters so that the price of flour or wheat landed here would not be more than the value of the Australian articles I believe the merchants would prefer to buy from the United States.

L. LE MESCAM,

NOUMÉA, *March 15, 1894.* *Vice-Commercial Agent.*

SAMOA.

STANDARD OF LIVING.

The standard of living in this country is above the average, and the people are quite ready to eat American flour.

QUALITY OF FLOUR USED.

The quality of American flour used is "Bakers' Extra."

IMPORTS OF FLOUR AND WHEAT.

The quantities of flour and wheat imported into Samoa were as follows:

Years.	Flour.			Wheat.	
	American.	Other.	Total.	American.	Other.
	Pounds.	*Pounds.*	*Pounds.*	*Sacks.*	*Pounds.*
1891	60,500	155,340	215,840	.....	8,160
1892	91,300	159,880	251,180	2	8,640
1893	76,500	75,680	152,180	.....	6,720
Total	228,300	390,900	619,200	2	23,520

DUTIES.

The import duty on wheat and flour from all countries is 2 per cent ad valorem.

EXCHANGE AND SHIPPING FACILITIES.

There are no facilities for American exchange, but one or two mercantile houses issue British exchange.

The facilities for shipping from the United States to this country are good—steamers every four weeks and sailing vessels three or four times a year.

OBSTACLES TO TRADE.

There are no obstacles in the way of the extension of trade in American flour except the difficulty of obtaining exchange.

TRADE OUTLOOK.

The trade in American flour will undoubtedly increase, as it is superior to all other flours.

W. BLACKLOCK,
Vice-Consul-General.

APIA, *April 24, 1894.*

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Full directions for binding the Consular Reports are given in No. 131, page 663.

VALUES OF FOREIGN COINS.

The following statements show the valuation of foreign coins, as given by the Director of the United States Mint and published by the Secretary of the Treasury, in compliance with the first section of the act of March 3, 1873, viz: "That the value of foreign coins, as expressed in the money of account of the United States, shall be that of the pure metal of such coin of standard value," and that "the value of the standard coins in circulation of the various nations of the world shall be estimated annually by the Director of the Mint, and be proclaimed on the 1st day of January by the Secretary of the Treasury."

In compliance with the foregoing provisions of law, annual statements were issued by the Treasury Department, beginning with that issued on January 1, 1874, and ending with that issued on January 1, 1890. Since that date, in compliance with the act of October 1, 1890, these valuation statements have been issued quarterly, beginning with the statement issued on January 1, 1891.

These estimates "are to be taken (by customs officers) in computing the value of all foreign merchandise made out in any of said currencies, imported into the United States."

The following statements, running from January 1, 1874, to April 1, 1894, have been prepared to assist in computing the proper values in American money of the trade, prices, values, wages, etc., of and in foreign countries, as given in consular and other reports. The series of years are given so that computations may be made for each year in the proper money values of such year. In hurried computations, the reductions of foreign currencies into American currency, no matter for how many years, are too often made on the bases of latest valuations. When it is taken into account that the ruble of Russia, for instance, has fluctuated from 77.17 cents in 1874 to 37.2 cents in April, 1894, such computations are wholly misleading. All computations of values, trade, wages, prices, etc., of and in the "fluctuating-currency countries" should be made in the values of their currencies in each year up to and including 1890, and in the quarterly valuations thereafter.

To meet typographical requirements, the quotations for the years 1876, 1877, 1879, 1881, and 1882 are omitted, these years being selected as showing the least fluctuations when compared with years immediately preceding and following.

To save unnecessary repetition, the estimates of valuations are divided into three classes, viz: (A) countries with fixed currencies, (B) countries with fluctuating currencies, and (C) quarterly valuations of fluctuating currencies.

A.—*Countries with fixed currencies.*

Countries.	Standard.	Monetary unit.	Value in terms of United States gold.	Coins.
Argentine Republic*	Gold and silver	Peso	$0.96,5	Gold—Argentine ($4.82,4) and ½ Argentine; silver—peso and divisions.
Austria-Hungary†	Gold	Crown	.20,3	Gold—20 crowns ($4.05,2) and 10 crowns.
Belgium	Gold and silver	Franc	.19,3	Gold—10 and 20 franc pieces; silver—5 francs.
Brazil	Gold	Milreis	.54,6	Gold—5, 10, and 20 milreis; silver—⅛, 1, and 2 milreis.
Chile‡	Gold and silver	Peso	.91,2	Gold—escudo ($1.82,4), doubloon ($4.56,1), and condor ($9.12,8); silver—peso and divisions.
Cuba	do	do	.92,6	Gold—doubloon ($5.02,7); silver—peso.
Denmark	Gold	Crown	.26,8	Gold—10 and 20 crowns.
Egypt	do	Pound (100 piasters).	4.94,3	Gold—10, 20, 50, and 100 piasters; silver—1, 2, 10, and 20 piasters.
Finland	do	Mark	.19,3	Gold—10 and 20 marks ($1.93 and $3.85,9).
France	Gold and silver	Franc	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Germany	Gold	Mark	.23,8	Gold—5, 10, and 20 marks.
Great Britain	do	Pound sterling	4.86,6½	Gold—sovereign (pound sterling) and half sovereign.
Greece	Gold and silver	Drachma	.19,3	Gold—5, 10, 20, 50, and 100 drachmas; silver—5 drachmas.
Haiti	do	Gourde	.96,5	Silver—gourde.
Italy	do	Lira	.19,3	Gold—5, 10, 20, 50, and 100 lire; silver—5 lire.
Liberia	Gold	Dollar	1.00	
Netherlands‡	Gold and silver	Florin	.40,2	Gold—10 florins; silver—½, 1, and 2½ florins.
Portugal	Gold	Milreis	1.08	Gold—1, 2, 5, and 10 milreis.
Spain	Gold and silver	Peseta	.19,3	Gold—25 pesetas; silver—5 pesetas.
Sweden and Norway	Gold	Crown	.26,8	Gold—10 and 20 crowns.
Switzerland	Gold and silver	Franc	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Turkey	Gold	Piaster	.04,4	Gold—25, 50, 100, 200, and 500 piasters.
Venezuela	Gold and silver	Bolivar	.19,3	Gold—5, 10, 20, 50, and 100 bolivars; silver—5 bolivars.

* In 1874 and 1875 the gold standard prevailed in the Argentine Republic. Its currency does not appear in the statements again until 1883, when the double standard prevailed, and the peso attained a fixed value of 96.5 cents.

† On reference to the table of "fluctuating currencies," it will be seen that Austria had the silver standard up to and including the quarter ending July 1, 1892. The next quarter (October 1) inaugurated the gold standard (*see* note under table of "fluctuating currencies").

‡ The gold standard prevailed in Chile until January 1, 1890. The value of the peso has been the same under both standards.

‡ The Netherlands florin, as will be seen in the "fluctuating" table, became fixed in value (40.2 cents) in 1880.

B.—*Countries with fluctuating currencies, 1874–'90.*

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1874.	1875.	1876.	1880.	1883.	1884.
Austria-Hungary*	Silver	Florin	$0.47,6	$0.45,3	$0.45,3	$0.42,3	$0.40,1	$0.39,8
Bolivia	do	Dollar until 1880; boliviano thereafter.	.96,5	.96,5	.96,5	.83,6	.81,2	.80,6
Central America	do	Peso	.96,5	.92,8	.92,8	.83,6	.....	.....
China	Silver	Haikwan tael	1.61	1.61	.....	.....	.....	.....
Colombia	do	Peso	.96,5	.96,5	.96,5	.83,6	.81,2	.80,6
Ecuador	do	do	.96,5	.92,8	.92,8	.83,6	.81,2	.80,6
Egypt†	Gold	Pound (100 piasters).	.....	.....	4.97,4	4.97,4	4.90	4.90
India	Silver	Rupee	.45,8	.43,6	.43,6	.39,7	.38,6	.38,3
Japan	Gold	Yen	.99,7	.99,7	.99,7	.99,7	.....	.....
	Silver		.....	.....	.....	.....	.87,6	.86,9
Mexico	do	Dollar	1.04,7½	.99,8	.99,8	.90,9	.88,2	.87,5
Netherlands‡	Gold and silver	Florin	.40,5	.38,5	.38,5	.40,2	.....	.....
Peru	Silver	Sol	.92,5	.92,8	.92,8	.83,6	.81,2	.80,6
Russia	do	Ruble	.77,17	.73,4	.73,4	.66,9	.65	.64,5
Tripoli	do	Mahbub of 20 piasters.	.87,09	.82,9	.82,9	.74,8	.73,3	.72,7

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1885.	1886.	1887.	1888.	1889.	1890.
Austria-Hungary*	Silver	Florin	$0.39,3	$0.37,1	$0.35,9	$0.34,5	$0.33,6	$0.42
Bolivia	do	Dollar until 1880; boliviano thereafter.	.79,5	.75,1	.72,7	.69,9	.68	.85
Central America	do	Peso	.....	.....	.....	.69,9	.68	.85
Colombia	do	do	.79,5	.75,1	.72,7	.69,9	.68	.85
Ecuador	do	do	.79,5	.75,1	.72,7	.69,9	.68	.85
Egypt†	Gold	Pound (100 piasters).	4.90	4.90	4.94,3	4.94,3	4.94,3	4.93,3
India	Silver	Rupee	.37,8	.35,7	.34,6	.33,2	.32,3	.40,4
Japan	Gold	Yen	.....	.....	.99,7	.99,7	.99,7	.99,7
	Silver		.85,8	.81	.78,4	.75,3	.73,4	.91,7
Mexico	do	Dollar	.86,4	.81,6	.79	.75,9	.73,9	.92,3
Peru	Silver	Sol	.79,5	.75,1	.72,7	.69,9	.68	.85
Russia	do	Ruble	.63,6	.60,1	.58,2	.55,9	.54,4	.68
Tripoli	do	Mahbub of 20 piasters.	.71,7	.67,7	.65,6	.63	.61,4	.76,7

* The silver standard prevailed in Austria-Hungary up to 1892. The law of August 2 of that year (*see* CONSULAR REPORTS, No. 147, p. 623) established the gold standard.

† The Egyptian pound became fixed in value at $4.94,3 in 1887.

‡ The Netherlands florin fluctuated up to the year 1880, when it became fixed at 40.2 cents.

C.—*Quarterly valuations of fluctuating currencies, 1891–'94.*

Countries.	Monetary unit.	1891.				1892.			
		Jan. 1.	April 1.	July 1.	Oct. 1.	Jan. 1.	April 1.	July 1.	Oct. 1.
Austria-Hungary *	Gold crown	.....	.....	.....	.....	.....	.....	.....	$0.20,3
	Silver florin	$0.38,1	$0.36,3	$0.36,3	$0.35,7	$0.34,1	$0.32,8	$0.32	.....
Bolivia	Silver boliviano	.77,1	.73,5	.73,6	.72,3	.69,1	.66,5	.64,9	.61,6
Central America	Silver peso	.77,1	.73,5	.73,6	.72,3	.69,1	.66,5	.64,9	.61,6
China †	Shanghai tael	1.13,9	1.08,5	1.08,7	1.06,8	1.02,1	.98,2	.95,8	.91
	Haikwan tael	1.27	1.20,9	1.21	1.18,9	1.13,7	1.09,3	1.06,7	1.01,3
Colombia	Silver peso	.77,1	.73,5	.73,6	.72,3	.69,1	.66,5	.64,9	.61,6
Ecuador	do	.77,1	.73,5	.73,6	.72,3	.69,1	.66,5	.64,9	.61,6
India	Silver rupee	.36,6	.34,9	.35	.34,3	.32,8	.31,6	.30,8	.29,3
Japan ‡	Silver yen	.83,1	.79,2	.79,3	.77,9	.74,5	.71,6	.69,9	.66,4
Mexico	Silver dollar	.83,7	.80	.80	.78,5	.75	.72,2	.70,4	.66,9
Peru	Silver sol	.77,1	.73,5	.73,6	.72,3	.69,1	.66,5	.64,9	.61,6
Russia ‖	Silver ruble	.61,7	.58,8	.58,8	.57,8	.55,3	.53,1	.51,9	.49,2
Tripoli	Silver mahbub	.69,5	.66,3	.66,4	.65,2	.62,3	.60	.58,5	.55,5
Venezuela ‖	Silver bolivar	.15,4	.14,7	.14,7	.14,5	.13,8	.13,3	.13	.12,3

Countries.	Monetary unit.	1893.				1894.	
		Jan. 1.	April 1.	July 1.	Oct. 1.	Jan. 1.	April 1.
Bolivia	Silver boliviano	$0.61,3	$0.61	$0.60,4	$0.53,1	$0.51,6	$0.46,5
Central America	Silver peso	.61,3	.61	.60,4	.53,1	.51,6	.46,5
China †	Shanghai tael	.90,6	.90,1	.89,2	.78,4	.76,2	.68,6
	Haikwan tael	1.01	1.00,4	.99,4	.87,4	.84,9	.76,5
Colombia	Silver peso	.61,3	.61	.60,4	.53,1	.51,6	.46,5
Ecuador	do	.61,3	.61	.60,4	.53,1	.51,6	.46,5
India	Silver rupee	.29,2	.29	.28,7	.25,2	.24,5	.22,1
Japan ‡	Silver yen	.66,1	.65,8	.65,1	.57,3	.55,6	.50,1
Mexico	Silver dollar	.66,6	.66,2	.65,6	.57,7	.56	.50,5
Peru	Silver sol	.61,3	.61	.60,4	.53,1	.51,6	.46,5
Russia ‖	Silver ruble	.49,1	.48,8	.48,3	.42,5	.41,3	.37,2
Tripoli	Silver mahbub	.55,3	.55	.54,5	.47,9	.46,5	.41,9

* Austria-Hungary had the silver standard up to August, 1892 (*see* note to "fluctuating" table B).

† China (silver). The Haikwan tael is the customs tael, and the Shanghai tael that used in trade. Consul-General Denny (CONSULAR REPORTS No. 43, p. 516) says: "The value of the tael varies in the different ports of China, and every port has two taels, one being the Government, or Haikwan, tael, in which all duties have to be paid, and the other the market tael, the former exceeding the latter by some 11 per cent."

‡ Gold is the nominal standard in Japan, but silver is practically the standard. The fixed value of the gold yen is 99.7 cents.

‖ The gold ruble is valued at 77.2 cents. Silver is the nominal standard, but paper is the actual currency, and its depreciation is measured by the gold standard.

‖ The Venezuelan bolivar became fixed in value (19.3 cents) on January 1, 1892.

FOREIGN WEIGHTS AND MEASURES.

The following table embraces only such weights and measures as are given from time to time in CONSULAR REPORTS and in Commercial Relations:

Foreign weights and measures, with American equivalents.

Denominations.	Where used.	American equivalent.
Almude	Portugal	4.422 gallons.
Ardeb	Egypt	7.6907 bushels.
Are	Metric	0.02471 acre.
Arobe	Paraguay	25 pounds.
Arratel or libra	Portugal	1.011 pounds.
Arroba (dry)	Argentine Republic	25.3175 pounds.
Do	Brazil	32.38 pounds.
Do	Cuba	25.3664 pounds.
Do	Portugal	32.38 pounds.
Do	Spain	25.36 pounds.
Do	Venezuela	25.4024 pounds.
Arroba (liquid)	Cuba, Spain, and Venezuela	4.263 gallons.
Arshine	Russia	28 inches.
Arshine (square)	do	5.44 square feet.
Artel	Morocco	1.12 pounds.
Baril	Argentine Republic and Mexico	20.0787 gallons.
Barrel	Malta (customs)	11.4 gallons.
Do	Spain (raisins)	200 pounds.
Berkovet	Russia	361.12 pounds.
Bongkal	India	832 grains.
Bonw	Sumatra	7,096.5 square meters.
Bu	Japan	0.1 inch.
Butt (wine)	Spain	140 gallons.
Caffiso	Malta	5.4 gallons.
Candy	India (Bombay)	529 pounds.
Do	India (Madras)	500 pounds.
Cantar	Morocco	113 pounds.
Do	Syria (Damascus)	575 pounds.
Do	Turkey	124.7036 pounds.
Cantaro (Cantar)	Malta	175 pounds.
Carga	Mexico and Salvador	300 pounds.
Catty	China	1.333⅓ (1⅓) pounds.
Do	Japan	1.31 pounds.
Do	Java, Siam, Malacca	1.35 pounds.
Do	Sumatra	2.12 pounds.
Centaro	Central America	4.2631 gallons.
Centner	Bremen and Brunswick	117.5 pounds.
Do	Darmstadt	110.24 pounds.
Do	Denmark and Norway	110.11 pounds.
Do	Nuremberg	112.43 pounds.
Do	Prussia	113.44 pounds.
Do	Sweden	93.7 pounds.
Do	Vienna	123.5 pounds.
Do	Zollverein	110.24 pounds.
Do	Double or metric	220.46 pounds.
Chih	China	14 inches.
Coyan	Sarawak	3,098 pounds.
Do	Siam (Koyan)	2,667 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalent.
Cuadra	Argentine Republic	4.2 acres.
Do	Paraguay	78.9 yards.
Do	Paraguay (square)	8.077 square feet.
Do	Uruguay	Nearly 2 acres.
Cubic meter	Metric	35.3 cubic feet.
Cwt. (hundredweight)	British	112 pounds.
Desiatine	Russia	2.6997 acres.
Do	Spain	1.599 bushels.
Drachme	Greece	Half ounce.
Dun	Japan	1 inch.
Egyptian weights and measures	(*See* CONSULAR REPORTS No. 144.)	
Fanega (dry)	Central America	1.5745 bushels.
Do	Chile	2.575 bushels.
Do	Cuba	1.599 bushels.
Do	Mexico	1.54728 bushels.
Do	Morocco	Strike fanega, 70 lbs. full fanega, 118 lbs.
Do	Uruguay (double)	7.776 bushels.
Do	Uruguay (single)	3.888 bushels.
Do	Venezuela	1.599 bushels.
Fanega (liquid)	Spain	16 gallons.
Feddan	Egypt	1.03 acres.
Frail (raisins)	Spain	50 pounds.
Frasco	Argentine Republic	2.5096 quarts.
Do	Mexico	2.5 quarts.
Fuder	Luxemburg	264.17 gallons.
Garnice	Russian Poland	0.88 gallon.
Gram	Metric	15.432 grains.
Hectare	do	2.471 acres.
Hectoliter:		
Dry	do	2.838 bushels.
Liquid	do	26.417 gallons.
Joch	Austria-Hungary	1.422 acres.
Ken	Japan	4 yards.
Kilogram (kilo)	Metric	2.2046 pounds.
Kilometer	do	0.621376 mile.
Klafter	Russia	216 cubic feet.
Kota	Japan	5.13 bushels.
Korree	Russia	3.5 bushels.
Last	Belgium and Holland	85.134 bushels.
Do	England (dry malt)	80.52 bushels.
Do	Germany	2 metric tons (4,480 pounds).
Do	Prussia	112.29 bushels.
Do	Russian Poland	11¾ bushels.
Do	Spain (salt)	4,760 pounds.
League (land)	Paraguay	4,633 acres.
Li	China	2,215 feet.
Libra (pound)	Castilian	7,100 grains (troy).
Do	Argentine Republic	1.0127 pounds.
Do	Central America	1.043 pounds.
Do	Chile	1.014 pounds.
Do	Cuba	1.0161 pounds.
Do	Mexico	1.01465 pounds.
Do	Peru	1.0143 pounds.
Do	Portugal	1.011 pounds.
Do	Uruguay	1.0143 pounds.
Do	Venezuela	1.0162 pounds.
Liter	Metric	1.0567 quarts.
Livre (pound)	Greece	1.1 pounds.
Do	Guiana	1.0792 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalent.
Load	England (timber)	Square, 50 cubic feet; unhewn, 40 cubic feet; inch planks, 600 superficial feet.
Manzana	Costa Rica	1⅞ acres.
Marc	Bolivia	0.507 pound.
Maund	India	82⅔ pounds.
Meter	Metric	39.37 inches.
Mil	Denmark	4.68 miles
Do	Denmark (geographical)	4.61 miles.
Morgen	Prussia	0.63 acre.
Oke	Egypt	2.7225 pounds.
Do	Greece	2.84 pounds.
Do	Hungary	3.0817 pounds.
Do	Turkey	2.85418 pounds.
Do	Hungary and Wallachia	2.5 pints.
Pic	Egypt	21¾ inches.
Picul	Borneo and Celebes	135.64 pounds.
Do	China, Japan, and Sumatra	133⅓ pounds.
Do	Java	135.1 pounds.
Do	Philippine Islands (hemp)	139.45 pounds.
Do	Philippine Islands (sugar)	140 pounds.
Pie	Argentine Republic	0.9478 foot.
Do	Castilian	0.91407 foot.
Pik	Turkey	27.9 inches.
Pood	Russia	36.112 pounds.
Pund (pound)	Denmark and Sweden	1.102 pounds.
Quarter	Great Britain	8.252 bushels.
Do	London (coal)	36 bushels.
Quintal	Argentine Republic	101.42 pounds.
Do	Brazil	130.06 pounds.
Do	Castile, Chile, Mexico, and Peru	101.61 pounds.
Do	Greece	123.2 pounds.
Do	Newfoundland (fish)	112 pounds.
Do	Paraguay	100 pounds.
Do	Syria	125 pounds.
Do	Metric	220.46 pounds.
Rottle	Palestine	6 pounds.
Do	Syria	5¾ pounds.
Sagen	Russia	7 feet.
Salm	Malta	490 pounds.
Se	Japan	3.6 feet.
Seer	India	1 pound 13 ounces.
Shaku	Japan	10 inches.
Sho	do	1.6 quarts.
Standard (St. Petersburg)	Lumber measure	165 cubic feet.
Stone	British	14 pounds.
Suerte	Uruguay	2,700 cuadras (*see* cuadra).
Tael	Cochin China	590.75 grains (troy).
Tan	Japan	0.25 acre.
To	do	2 pecks.
Ton	Space measure	40 cubic feet.
Tonde (cereals)	Denmark	3.94783 bushels.
Tondeland	do	1.36 acres.
Tsubo	Japan	6 feet square.
Tsun	China	1.41 inches.
Tunna	Sweden	4.5 bushels.
Tunnland	do	1.22 acres.
Vara	Argentine Republic	34.1208 inches.
Do	Castile	0.914117 yard.
Do	Central America	38.874 inches.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalent.
Vara	Chile and Peru	33.367 inches.
Do	Cuba	33.384 inches.
Do	Curaçao	33.375 inches.
Do	Mexico	33 inches.
Do	Paraguay	34 inches.
Do	Venezuela	33.384 inches.
Vedro	Russia	2.707 gallons.
Vergees	Isle of Jersey	71.1 square rods.
Verst	Russia	0.663 mile.
Vlocka	Russian Poland	41.98 acres.

METRIC WEIGHTS AND MEASURES.

Metric weights.

Milligram ($\frac{1}{1000}$ gram) equals 0.0154 grain.
Centigram($\frac{1}{100}$ gram) equals 0.1543 grain.
Decigram ($\frac{1}{10}$ gram) equals 1.5432 grains.
Gram equals 15.432 grains.
Decagram (10 grams) equals 0.3527 ounce.
Hectogram (100 grams) equals 3.5274 ounces.
Kilogram (1,000 grams) equals 2.2046 pounds.
Myriagram (10,000 grams) equals 22.046 pounds.
Quintal (100,000 grams) equals 220.46 pounds.
Millier or tonnes—ton (1,000,000 grams) equals 2,204.6 pounds.

Metric dry measure.

Millimeter ($\frac{1}{1000}$ liter) equals 0.061 cubic inch.
Centiliter ($\frac{1}{100}$ liter) equals 0.6102 cubic inch.
Deciliter ($\frac{1}{10}$ liter) equals 6.1022 cubic inches.
Liter equals 0.908 quart.
Decaliter (10 liters) equals 9.08 quarts.
Hectoliter (100 liters) equals 2.838 bushels.
Kiloliter (1,000 liters) equals 1.308 cubic yards.

Metric liquid measure.

Millimeter ($\frac{1}{1000}$ liter) equals 0.27 fluid ounce.
Centiliter ($\frac{1}{100}$ liter) equals 0.338 fluid ounce.
Deciliter ($\frac{1}{10}$ liter) equals 0.845 gill.
Liter equals 1.0567 quarts.
Decaliter (10 liters) equals 2.6417 gallons.
Hectoliter (100 liters) equals 26.417 gallons.
Kiloliter (100 liters) equals 264.17 gallons.

Metric measures of length.

Millimeter ($\frac{1}{1000}$ meter) equals 0.0394 inch.
Centimeter ($\frac{1}{100}$ meter) equals 0.3937 inch.
Decimeter ($\frac{1}{10}$ meter) equals 3.937 inches.
Meter equals 39.37 inches.

Decameter (10 meters) equals 393.7 inches.
Hectometer (100 meters) equals 328 feet 1 inch.
Kilometer (1,000 meters) equals 0.62137 mile (3,280 feet 10 inches).
Myriameter (10,000 meters) equals 6.2137 miles.

Metric surface measures.

Centare (1 square meter) equals 1,550 square inches.
Are (100 square meters) equals 119.6 square yards.
Hectare (10,000 square meters) equals 2.471 acres.

CONSULAR REPORTS.

COMMERCE, MANUFACTURES, ETC.

VOL. XLV. JULY, 1894. No. 166.

CONTRACTS FOR EUROPEAN ARMY SUPPLIES.*

AUSTRIA.

Among the first requirements necessary to compete on contracts intended for the Austrian army is the condition that bidders must be Austrian subjects who pay taxes to the Austrian Government. Furthermore, the successful bidder can not sublet the contract to outsiders. In short, the Austrian army must be equipped with accouterments manufactured in Austria by Austrians.

MAX JUDD,
Consul-General.

VIENNA, *December 12, 1893.*

ENGLAND.

Upon receipt of the Department's instruction dated September 27, 1893, directing me to report upon the subject of letting contracts in England for army supplies, particularly harnesses, knapsacks, scabbards, etc., I proceeded at once to institute inquiries at the War Office and elsewhere, in the expectation of obtaining data for a full and comprehensive reply to the broad terms of the instruction.

The officials at the contract division of the War Office, governed by their rules, declined to give me anything but the most general idea of the procedure in letting contracts, and I sought for information elsewhere, but without much success. What I obtained from both sources I considered at the time too meager to forward.

Upon receipt of the cable dispatch of the Department, dated March 10, 1894, I invoked the assistance of the ambassador to obtain more complete

*This series of reports was obtained from consular officers at the request of a firm of leather manufacturers, and is published for the information of United States merchants and manufacturers who may be interested in the subject.

and satisfactory information on the subject, by an application to the Secretary of State for War or otherwise, and have just received from Col. Ludlow, the military attaché, additional facts, which, added to those I already possessed, I now transmit.

It is the uniform practice of the War Office to invite by public advertisement (inclosure No. 1) bids for material wanted, and also by sending invitations to bid to certain reputable manufacturers of and actual dealers in the material. A list of these manufacturers and dealers is made up and kept at the War Office, and revised from time to time, new names being added and old ones dropped, according to their known capacity and fidelity in fulfilling their contracts.

Contracts in almost all cases are given to firms, corporations, and individuals on this list, and to the lowest bidders among them. I inclose a blank form of contract (inclosure No. 2).

Where very large quantities are required the department frequently divides the contract among several bidders, even when the bids vary somewhat. This is always done when the department considers the contract too large or undesirable for one party to undertake. Contracts for supplies are given only to manufacturers and actual dealers.

No special treatment is made of leather supplies. Speaking broadly, there are two main divisions into which all contracts can be divided:

(1) Supplies drawn locally from the places where the troops are stationed, such as hay, bread, and articles of that kind. These are obtained by public advertisement, the tender forms containing particulars as to the standards and quantities wanted, and the lowest tender is accepted, subject to local inquiry as to the competency of the person tendering.

(2) Supplies, such as guns, accouterments, and the general articles of equipment for the troops, which are issued from central depots, and must exactly conform to a uniform pattern. Harness, scabbards, and leather articles mainly come under this division.

The department prepares, and keeps corrected from time to time, a specification showing in detail the store that is wanted, together with a standard pattern agreeing with the specification.

The department sends a requisition at regular times, showing its requirements of each article to the contract branch. The contract branch has a list of all firms who are reliable and are willing to supply the various articles. On receiving a requisition, the contract branch sends details to all firms on its list with tender forms. These tender forms contain a reference to the specification and standard pattern for each article.

On a tender being accepted the contractor works to the specification and standard pattern, and, when the goods are sent in by the contractor, the inspection department inspects them by the specification and pattern.

There is nothing particular to add about leather goods, except that it appears that the department has more difficulty with them than with most other supplies. Great uniformity is required, and the articles themselves, in

many cases, contain a quantity of detailed work. Many large firms do not care to be at the trouble of working to the uniformity required and risk their supplies being rejected.

I deeply regret the delay, and that the information transmitted is so scanty in detail, notwithstanding the kind coöperation of the officials at the embassy.

PATRICK A. COLLINS,
Consul-General

LONDON, *March 21, 1894.*

[Inclosure 1.]

WAR DEPARTMENT CONTRACTS FOR REPAIRS AND MATERIALS.

Tenders are required for the triennial contracts from April 1, 1894, at the several stations in the following engineer districts and subdistricts. [Here follows the districts, etc.]

Forms of tender, conditions of contract, and all necessary information may be obtained on application at the above-named royal engineer offices, by letter addressed to the commanding royal engineer, or in person between the hours of 11 and 3 o'clock. Tenders are to be forwarded to the "Director of Army Contracts, War Office, Pall Mall, London, S. W.," not later than the date fixed in the local notices.

G. LAWSON,
Director of Army Contracts.

WAR OFFICE, PALL MALL, S. W., *March 1, 1894.*

[Inclosure 2.]

Army form K. 1271.

NOTE.—This form of tender is to be delivered at the War Office, Pall Mall, London, S. W., by 12 o'clock noon on———, addressed to the "Director of Army Contracts," and marked on the outside "Tender for———." Any omission in this respect may lead to the offer not being duly considered.

STORES AND MATERIALS.

To Her Majesty's Principal Secretary of State for the War Department.

SIR: [I or we] (hereinafter styled "the contractor") do hereby engage to provide and deliver the several articles enumerated in the schedule hereunto annexed, to which [I or we] have affixed prices (or such portion thereof as you may determine), at the price or prices therein stated, and upon the conditions herein set forth.

Dated this———day of———189—.

[Signature of contractor]——— ———.

[Address]——— ———.

[Witness]——— ———.

[Address]——— ———.

NOTE.—Any modification of the schedule considered expedient should form the subject of a separate letter to accompany the tender. The prices should be stated at "per cwt.," "pound," "dozen," "each," etc., as specified. Fractions of a penny should be expressed in decimals only.

CONDITIONS OF CONTRACT.

(1) The articles required shall be of the qualities and sort described, and equal in all respects to the standard patterns, specifications, or drawings; and shall be delivered by the

contractor, at his own expense, at the time or times specified in the schedule, into the charge of the officer at the station named, accompanied by an invoice* in duplicate.

(2) The articles, previous to their being received into store, shall, within thirty days from their delivery, unless otherwise stated in the specification or schedule, be examined; and if found inferior or defective in quality, or differing from the standard pattern, specification, or drawing, may be rejected, and the contractor shall replace the same at his own expense within ten days after he is required by notice so to do, without any allowance being made to him; and such rejected articles shall not be considered as having been received under the contract.

(3) The reception or rejection of articles shall be governed solely by the standard patterns, specifications, and drawings. (When practicable, samples will, on application, be lent to the contractor for his general guidance; the cost of carriage, both ways, must be borne by the contractor.)

(4) A certificate shall be prepared within forty days after the delivery of the articles for such quantities as may have been accepted, but if the deliveries be divided into periodical proportions, a certificate shall be prepared, as aforesaid, for each proportion. Upon notification from the receiving officer that a certificate has been prepared, the contractor shall forward to that officer his account* or bill, marked on the cover "contractor's account."

(5) Payment shall be made direct to the contractor, and not to an agent or attorney, within seven days from the rendering of the account, as required in clause 4, or within seven days after the removal of any objections which may arise thereon.

(6) Should the articles or any portion thereof not be supplied within the period or periods stipulated for the delivery, the contractor shall be liable to a fine of 2½ per cent on the value of the articles deficient, and which fine may at any time be deducted from any sum or sums then due or which at any time thereafter may become due to him under this or any other contract, or may be demanded of him to be paid within fourteen days to the paymaster-general, to the credit of the War Office; and in addition thereto, the Secretary of State for War shall be at liberty to purchase the supplies from other persons, and to charge the difference between the price paid for the same and the contract prices to the contractor, and which difference shall be deducted and paid in like manner as the fines hereinbefore mentioned; and further, the Secretary of State for War shall be at liberty, if he think fit so to do, to terminate the contract at or after any one of the specified periods at which default shall have been made, either wholly or to the extent of such default.

(7) The Secretary of State for War may terminate the contract forthwith for any offense under clause 8. The said Secretary of State may also at any time terminate the contract if the contractor shall be adjudged bankrupt, or if under any present or future bankruptcy act any receiving order, or order for the administration of his estate shall be made against him, or if he shall enter into, make, or execute any deed of arrangement as defined by the deeds of arrangement act, 1887, or other composition or arrangement with or assignment for the benefit of his creditors, or purport so to do; or if (in Scotland) he become insolvent or notour bankrupt, or application be made under any present or future bankruptcy act for sequestration of his estate, or application be made by him or any of his creditors for *cessio bonorum* against him, or a trust deed be granted by him for behoof of creditors.

(8) Any bribe, commission, gift, loan or advance given, promised, or offered by, or on behalf of the contractor, or his partner, agent, or servant, in relation to the obtaining or to the execution of this or any other contract for Her Majesty's service, or given, promised, or offered by, or on behalf of the contractor or his partner, agent, or servant, to any officer or person in the service or employ of the Crown, who shall be in any way connected with the execution of this contract, subjects the contractor to cancellation of this and all other contracts, and also to payment, as a debt due to the Crown, of 10 per cent on all sums which he has received or would have become entitled to receive under this contract, and also to payment of any loss

*The necessary invoice and bill forms can be obtained on application to the receiving officer at the station at which the articles are to be delivered.

resulting from any such cancellation. Any question or dispute as to a breach of this article or the sums to be paid is to be settled by the Secretary of State for War in such manner, on such evidence or information, as he thinks fit, and his decision is to be final.

(9) No portion of this contract shall be transferred without the written permission of the director of army contracts. Subletting, other than that which may be customary in the trades concerned, is prohibited. The wages paid in the execution of this contract shall be those generally accepted as current in each trade for competent workmen in the district where the work is carried out.

(10) The Secretary of State for War shall have the power of rejecting any or all of the tenders or of accepting such portion of any tender as he may think fit.

(11) No member of the House of Commons shall be admitted to any part or share of this contract or to any benefit to arise therefrom. (For exemptions, see statute 22, Geo. III, chap. 45.)

FRANCE.

The contracts for materials, supplies, transportation, construction, etc., for the army of France, as well as for all the departments of the Government, are awarded by the agencies and methods prescribed by the law of January 31, 1833, entitled "a royal ordinance regulating the formalities to follow in all purchases and contracts in the name of the Government" and the decree of the President of the Republic, dated November 18, 1882, and the decree of the Minister of War, dated July 31, 1889, made in pursuance of such law.

NOTICE OF LETTINGS.

Notice of lettings of contracts is given by advertisements in the newspapers, by posters, etc., at least twenty days in advance, except in case of emergency. Such notice must set forth:

(1) The nature of the objects and materials required to be furnished, or of the work, the transportation, or the service required to be undertaken.

(2) The place, the day, and the hour of opening of proposals.

(3) The authorities charged with letting the contract.

(4) The place or places where the specifications may be obtained or examined, and all information secured as to the formalities required of bidders, and where any samples, models, designs, types, or estimates which may have been adopted by the administration may be seen.

(5) The time allowed for the submission of declarations of intention to bid, when two meetings (preliminary and final) of the body receiving proposals are required, as hereafter explained.

MEETINGS OF THE COMMISSIONS.

A single public meeting of the "commission of adjudication" (as the body charged with the awarding of the contracts is styled) is provided for when proposals are invited for supplies, works, transportation, exploitations, or fabrications or supplies are to be purchased or contracts for which can be divided and opened without inconvenience to unlimited competitors.

When the supplies, works, transports, exploitations, and fabrications can not safely be confided except to persons recognized as competent and fulfilling certain definite conditions, a preparatory session of the "commission of admission" is required. At this preparatory session, which is private, the applications of persons desiring to submit tenders are passed upon, and only those are admitted to the competition who fulfill the conditions required.

COMPOSITION OF THE COMMISSIONS.

The "commission of adjudication" consists of:

(1) A representative of the civil authority, who takes precedence of his associates.

(2) A representative of the branch of the service to which the matter in hand appertains, who is known as the "technical member."

(3) An officer of garrison of a grade at least equal to that of the technical member.

(4) An officer of the administration, when the proceedings do not relate to the administrative service.

The representative of the civil authority presides over all the sessions of the commission, conducts all the proceedings, receives all the tenders, numbers and indorses them, announces all the decisions of the commission, including the final result of its deliberations, receipts to the unsuccessful bidders for the temporary bonds or guaranties which they have filed, and causes to be prepared a full report of the proceedings, of which he requires two copies to be made, one of which is deposited in the archives and the other given to the technical member, together with all the proposals and other documents related. The two copies of the official reports of the proceedings before mentioned must also be signed by each member of the commission and by the successful bidders and their sureties.

In the event of a tie vote in commission the result is determined by the vote of the civil member.

The technical member is charged to prepare all the details of the proceedings, and to give the requisite publicity thereto in advance, announcing the place, day, and hour. If a preparatory session of the commission is involved, he receives and receipts for the declarations of intention to bid with the accompanying evidence of eligibility submitted by persons desiring to engage in the competition, and he makes a record of such declarations, which he must terminate at the expiration of the time allowed for the filing of them; he collects from the municipalities, the chambers, and tribunals of commerce, and the branches of public administration, and especially from those with which the proposing bidders have had relations, all the pertinent information possible regarding them and their bondsmen, which he communicates to the commission; he notifies to the intending bidders their admission to, or exclusion from, the competition; prepares the official report of the preparatory session and sends a copy of the same to the official entitled thereto. He is also required to prepare reports of the effective condition of

men and animals, and, finally, to give to proposing bidders and their bondsmen this and all other information necessary to enable them to formulate their propositions intelligently, with full knowledge of the obligations they seek to assume and the consequences these involve. At the final session of the commission he gives all the information and explanations which may be required or which he may deem useful; at the end of the session he accepts, provisionally, or definitely, if he has been specially authorized, the contracts or agreements in the name of the minister stipulating for the account of the Government. He transmits immediately a copy of the official report of the adjudication, either to the minister or to the director of the service; he causes this report to be recorded after it has been formally approved by the competent authority; he delivers to the proper functionaries copies or extracts from such document, and assures the preservation in the archives of the service of the duplicate which has been remitted to him, as well as of the accompanying papers, which must remain attached thereto.

The officer of the garrison participates in the deliberations and decisions of the commission.

The officer of the administration has, when the proceedings do not appertain to the administrative service, more particularly a legal role. He is especially charged to see that the prescribed forms are used and the established regulations followed.

SIMPLE ADJUDICATIONS—QUALIFICATIONS OF BIDDERS.

As a rule, no one is admitted to compete for contracts in any branch of the service in the Department of War who does not present evidence that he is a citizen of France and certificates from the proper local officials showing the place of his residence and establishing his good character. These documents must be attached to his proposal.

The quantity of supplies or the amount of work for which proposals are invited is set forth in the notice to the public and in the specifications. It is, when practicable, divided into lots. The specifications stipulate whether these lots must be awarded to different contractors or whether bids will be received from the same person on all the lots. When tenders are solicited on objects of the same nature of which the total quantity is not divided into lots, bidders may make tenders on a part of the same, if authorized by the specifications, within the limits of the minimum therein indicated. Every proposal may contain distinct tenders on the different foods, materials, supplies, etc., for which contracts are to be awarded. Each offer, however, constitutes a distinct engagement, and the rejection or nonadmission of one does not involve the rejection of the others. If the supplies are to be delivered at several places a distinct proposal for each place is required, unless the magazines at the several places are under the same official management.

When proposals are submitted by one person for supplies, etc., to be furnished for several places, the acceptance of one or of several of the proposals will, if so specified in the proposals, liberate the bidder from all other

been received. When the quantities offered within the "maximum price" exceed the quantities desired, the best proposal is reduced to the proper limit of quantity. If there are several tenders equally favorable and better than all others, a new competition is invited, to which all persons present fulfilling the required conditions are admitted. If the best bids submitted at the new competition are again equal, the contract is awarded by lot.

PROTESTS AND COUNTER CLAIMS.

When no protests are entered against the action of the commission, its decisions, publicly announced during its session and formally notified to all persons interested, are final and can not be appealed from. When protests or counter claims are made during the session by one or several bidders, the same are specifically set forth in the official report of the proceedings, which must be signed by the protestants or claimants. In this case the award is not final until formally approved by the Minister of War. If no protest or claim is made by any bidder, the fact must be set forth in the official report of the adjudication.

The technical member of the commission may, if specially authorized, accept definitely during its session the results of the adjudication. The final approval of the Minister of War is, however, always necessary when there is but one bidder at a first competition. When at a second competition there is but one bidder, there having been more than one at the first competition, ministerial approval is not required. When ministerial action is required, the successful bidder's attention is publicly called to that fact by the technical member of the commission.

REPORT OF THE LETTING.

The proceedings and decisions of the commission are set forth in a formal report (*procès-verbal*), which operates as a contract in case of an award being made. It is signed, together with the accompanying documents, tables, etc., by the contractors and bondsmen, by the president and members of the commission, and by all protesting bidders. This paper, having been duly stamped and registered, is deposited in the archives of the branch of the service to which it appertains, the technical member being charged to transmit to the proper officials copies or extracts of the same.

A certified copy is delivered within twenty-four hours to the director of the service, and certified extracts, according to prescribed forms, to the contractor.

FAILURE OF CONTRACTOR TO SIGN.

If, when the commission makes the award, the contractor or his bondsmen are absent, or if, being present, they, or either of them, refuse to sign the *procès-verbal*, the fact is duly set forth in that document; to which the tender of the successful bidder remains attached. The successful bidder and his bondsmen are formally notified of the award just as if they had signed the *procès-verbal*.

TIME WHEN CONTRACT BECOMES EFFECTIVE.

When the technical member, speaking in the name and for the account of the Government, has formally accepted the contract, the time allowed for the execution thereof runs from the date of such acceptance. If the approval of the minister is required, the time for the execution of such contract runs from the date of the notification to the contractor of such ministerial approval.

FAILURE OF ADJUDICATION—CONTRACT BY PRIVATE AGREEMENT.

When, after two competitions, no result, or an incomplete result, has been attained, the president announces that the technical member is authorized to receive, during the succeeding forty-eight hours, any propositions which may be made, either by the persons who have taken part in the competition, or by any others who fulfill the necessary requirements. He makes known that these proposals must be written or signed by the authors or by persons acting for them under duly executed powers of attorney and transmitted under seal, and that they will bind the signer or his principal until the award is made. The technical member thereupon announces the hour at which bids will be opened by him, at which time he proceeds to open and compare all the bids received, in the presence of all the bidders. He accepts definitely, in the name of the State, if expressly authorized, or provisionally in other cases, the best bids submitted, if they are within the limits of the predetermined "maximum price."

In the case of two or more bids lower than all others being equal, the contract is awarded by lot, unless one of the bidders is a labor union, having conformed to certain conditions, in which event it must have the preference.

The formal approval of the Minister of War is always required when there is but one bidder, or when a protest or counter claim has been duly filed by any bidder.

COMMISSIONS OF ADMISSION.

When it is necessary that the contracts proposed to be awarded shall be confided only to persons known to be capable and fulfilling certain requirements, a "commission of admission" for the purpose of passing upon the applications of intending competitors is provided for. Publication is made in due form, inviting persons desiring to bid on the proposed contracts to deposit with the technical member of the "commission of adjudication" within a stated time—

(1) A declaration of his intention to bid, stating his full name, domicile, and occupation, and specifying the particular work or supplies for which he desires to tender bids, in whole or in part.

(2) Certificates establishing his French citizenship.

(3) Certificates from the administration records showing that he has not been adjudged a failing creditor, or, if so, that he has been rehabilitated, and

a certificate, dated not more than three months before submission, that he is not in course of judicial liquidation.

(4) An official return setting out the public contracts, if any, which he has previously undertaken either alone or jointly with others.

(5) A written declaration by some responsible person engaging himself to undertake jointly with the proposed bidder the execution of any contract which may be awarded to him.

(6) If the pending contract involves works of construction or processes of manufacture, the intending bidder must present satisfactory evidence that he has the necessary patents or licenses, that he possesses either in fee simple or as lessee for a sufficient length of time the buildings, shops, factories, engines, machinery, etc., necessary to the execution of the work, subject to all conditions as to forfeiture or retrocession which may have been set out in the specifications and plans of all factories, workshops, and buildings in which it is proposed to do the manufacturing, repairing, etc., involved in the proposed contract, all of which must be situated on French territory and certified as safe and adequate by the official architect of the department in which they are found, with full details as to the motive power, whether steam or hydraulic, employed in such shops, factories, etc.

The technical member of the commission must give to the person depositing the papers enumerated in the foregoing a detailed receipt for the same.

Corporations, firms, and societies desiring to enter into competitions for works, supplies, etc., must file the documents hereinbefore enumerated, together with legalized copies of the articles of incorporation or copartnership. Certificates establishing the French citizenship and the solvency of the individual members of a firm and the officers, trustees, directors, etc., of a corporation desiring to bid are also required. Persons offering bids in behalf of corporations are required to file with them formal credentials showing their authority to act in the name of such corporations.

The technical member of the "commission of adjudication," at the expiration of the time allowed for the filing of declarations of intending bidders, prepares a list of those received and transmits a copy of the same either to the Minister of War or to the director of the branch of the service specially interested, as the case may be. It is his duty to collect from the municipal authorities, the tribunals, the chambers of commerce, and other sources all the information possible as to the general aptitude, the commercial morality, and the solvency of the signers of the declarations and of the persons offered by them as bondsmen. If they hold or have held contracts with the Department of War, he must investigate the manner in which they execute, or have executed, such engagements. The Minister of War can, at his option, send experts to examine the shops, factories, etc., in which it is proposed to perform works of construction or fabrication, who shall make formal reports as to the suitability or capacity of the buildings, machinery, etc. These reports, to which the persons interested are permitted to add,

in writing, any explanations or statements pertinent, are transmitted to the "commission of admission," to which also the information collected by the technical member is submitted. The "commission of admission" is composed of (1) the mayor of the commune or his deputy, (2) the technical member of the "commission of adjudication," (3) a member of the municipal council designated by the prefect or the subprefect, and (4) the officer member of the "commission of adjudication" and a second officer of the garrison, both designated by the military authority.

The "commission of admission," after full consideration, determines upon the admissibility of the proposing bidders and their bondsmen. As to those admitted to the competition, it fixes the extent of the contracts which can advantageously be awarded to them, if their bids are found to be the best. Alphabetical lists of those admitted to the competition for all or part of the contracts to be awarded, as well of those not admitted, are prepared, which are held secret, although copies of the same are attached to the official report of the proceedings of the "commission of admission," which is transmitted under seal by the technical member to the Minister of War.

The decisions of the commission are reported the same day, by the technical member, to all persons who have filed declarations, but the grounds of the commission's action are not announced.

AWARD AFTER A "SÉANCE PREPARATOIRE."

All persons admitted to the competition by the "commission of admission" may submit bids for all the supplies, works, etc., for which contracts are to be awarded. But bids will not be accepted from any person for more than the maximum for which he has been adjudged competent by the "commission of admission." The proceedings of the "commission of adjudication" after a "séance preparatoire" are the same as in the case of a "simple adjudication," hereinbefore described, save that at the opening of the session the list of persons admitted to the competition is publicly read by the president. In case of ties between the best bidders the result is determined by a new competition, and then by lot, as in "simple adjudications."

The advertisements and specifications may provide for a provisional bond, which may consist either of money or of Government securities. These must be deposited in the public treasury and a receipt taken for the same, which receipt is attached to the bid. If the bid is rejected, the receipt is indorsed by the president of the commission to that effect, and upon presentation of the receipt so indorsed to the treasury the money or securities are returned to the depositor. The receipts of the bidders to whom contracts are awarded are retained pending the filing of definite bonds.

"ADJUDICATIONS PROVISOIRES."

In certain cases the specifications provide for the submission of "offers of rebate" on the best prices offered at an "adjudication." This proceeding is known as an "adjudication provisoire." Offers of rebate of less than 10

per cent of the prices fixed at the "adjudication provisoire" are not considered. Such offers may be tendered by any person, whether he has taken part in the original competition or not, who possesses the qualifications and presents the documentary evidence thereof required by the specifications. Such offers of rebate must be written on stamped paper. The time allowed for the submission of such offers must not exceed twenty days.

The specifications prescribe the form in which they must be made and to whom they must be addressed. They are opened publicly at the "séance of readjudication," of which the date is fixed in the advertisement of the letting.

When, conformably to the specifications, one or more offers of rebate on the price of the first adjudication are submitted within the time specified, a new adjudication is proceeded with between the best bidder in the first competition and the person or persons submitting offers of rebate. The contract is then definitely awarded to the lowest bidder, ties being settled by lot. The official report of the readjudication is signed by the successful bidder, by his bondsmen, and by the members of the commission.

COMPETITION BY SAMPLES.

When, for certain supplies, competition by samples and prices is required, a date is fixed before which bidders must deposit together at the place designated their samples and proposals. When the time allowed for depositing samples and bids expires, the technical member of the "commission of adjudication" prepares a list of the same, and the commission thereupon proceeds, with the aid of persons designated for that purpose in the original specifications, to inspect and test the samples of goods deposited. To each of the samples fulfilling the conditions of admission a coefficient is attached indicating its quality as related to that of competing samples. A report of this inspection and test, signed by all the persons officially participating, is prepared and read before the "commission of adjudication" before it proceeds to final action.

The proposals only of those persons whose samples have been approved are admitted to the competition. The other proposals submitted are returned, unopened, to the senders directly after the adjudication. The proposals admitted, as numbered in the order of their receipt, are opened and read in public session of the commission by the president. The classification of these proposals is made by combining the prices named with the coefficients attributed to the corresponding samples. The bidder whose combined offer is the most advantageous is awarded the contract, provided that his tender is within the limit of the "maximum price," previously determined. If no maximum price has been decreed, the award remains subject to approval or disapproval by the Minister of War. A parity of bids is the occasion of a second competition, after which, failing of result, lots are drawn.

TRADES UNIONS AS BIDDERS.

Societies of French workmen (labor unions), organized in any of the forms contemplated by the law of July 24, 1867, are admitted to compete

for contracts for any supplies, etc., under certain conditions, unless the Minister of War holds that such competition will be prejudical to the interests of the service.

Before being admitted to any competition, these societies must produce, ten days at least before the day fixed for opening bids, (1) full lists of their members; (2) their articles of association, by-laws, etc., and (3) certificates of capacity to fulfill the contracts, signed by the functionaries charged with supervising the execution of the same. The societies must indicate the minimum number of members whom they engage to employ in the execution of the contract, if awarded to them.

In the event of a parity of bids between a labor organization on the one hand and any individual firm or corporation on the other, the preference must be given to the labor organization. In the event of a parity of bids between competing labor unions a new competition is ordered, which, failing, lots are drawn: Labor organizations to which contracts amounting to less than 50,000 francs are awarded are not required to furnish security.

Goods can be purchased or work ordered from labor organizations by private agreement when the amount involved does not exceed 20,000 francs.

FRENCH PRODUCTS PREFERRED.

In the purchase of supplies for the Department of War, as for all other departments, either by contract or otherwise, preference is always given, other things being equal, to French products.

COMPETITION SUSPENDED UNDER CERTAIN CONDITIONS.

From the date of the issuing of an order for the mobilization of the army, and whenever circumstances demand that the operations of the department shall be held secret, the requirements as to public competition, etc., may be suspended and contracts and purchases made by private agreement, authority having been previously given by the President of the Republic upon a special report of the Minister of War.

SAMUEL E. MORSS,
Consul-General.

PARIS, *January 11, 1894.*

GERMANY.

I have the honor to transmit a translation of the regulations for the letting of contracts for supplies in Germany, particularly where leather is used by the army authorities.

W. H. EDWARDS,
Consul-General.

BERLIN, *January 16, 1894.*

REGULATIONS FOR THE LETTING OF CONTRACTS FOR SUPPLIES AND SERVICES FOR THE ARTILLERY DEPOTS, ARTILLERY WORKSHOPS, RIFLE, MUNITION, AND POWDER FACTORIES, PROJECTILE FACTORY, CANNON FOUNDRY, FIREWORK LABORATORIUM, AND THE DEPOT MANAGEMENT OF THE ARTILLERY TESTING COMMISSION.

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(1) In letting out contracts for supplies and services the object to be kept in view is the obtainment of good material and good work at the lowest possible prices.

(2) Articles of the same quality used simultaneously by various officials of one place or of one district are, as far as possible, to be contracted for in common by these officials at one place, because it is to be expected that the larger the entire amount of the delivery the smaller the percentage of profit to the contractors.

(3) As a general rule, supplies and services must not be contracted for for a period extending beyond the end of the fiscal year in which the contract is let.

(4) The letting of contracts can be effected either by means of obtaining bids (public or restricted), or by direct negotiations, or by opening an account.

(5) In general, except in the cases provided for in 6–8, the letting of contracts is to be effected by calling for public bids and leaving competition unrestricted.

(6) Restricted calls for bids may be addressed to suitable individual contractors when the nature of the supplies or services desired demand an unusual degree of skill or reliability; when the articles to be delivered can be obtained in reliable quality only from certain sources, and when the most careful supervision would not suffice to prevent the delivery of adulterated wares or wares of lower grade; when it is in the interest of the service to avoid the loss of time necessitated by a public call for bids; and, finally, when a public call for bids has been terminated (44 and 45) and no favorable result is to be expected from a repeated call. The restriction can not extend further than is required by the fiscal interest.

(7) A direct negotiation or purchase can take place when the value of the supplies or services needed does not exceed 300 marks ($71.40); when purchases are made from other officials, without distinction being made as to whether they are State or communal, domestic or foreign officials; when the seller is actually without competitors; when special reliability and discretion are required of the seller, purveyor, or finisher; when the need arises so suddenly that, in order to satisfy the same, there is no time even to issue a limited call for bids; when the need can be supplied in connection with a contract entered into by another official for the delivery of articles of the same sort (which, as shown in 2, will very seldom be possible); when, in urgent cases, the need can be supplied by extending contracts which have just expired for the delivery of the needed article and when a lower price can not be expected from a renewal of the call for competitive bids; when one—or perhaps several—public or restricted calls for bids have been without result, and when, after a public call for bids has been abandoned, no advantage can be obtained by letting the contract by means of a restricted

call for bids (6); finally, in the purchase of such articles as from their nature can not well be obtained through public or restricted calls for bids or which can not be otherwise so advantageously acquired.

(8) The performance of work upon account is restricted to those rare cases where the work can not be, in advance and in its entire extent, so fully surveyed as to render possible the letting of contracts in another way.* All work which is to be performed on account must be subjected to especially careful supervision and control, so that only what is actually necessary can be done, and so that the officials can be convinced that the services charged for in the account have been actually rendered.

(9) So soon as the value of the required delivery or service exceeds 300 marks ($71.40) the consent of the higher instance (officials) to the method to be followed in letting the contract is necessary.† In such petitions and proposals of administrative officials, in case another method of letting the contract than a public call for bids comes in question, the reasons for deviating from the general rule must be distinctly given. If a restricted call for bids is proposed, the names of the persons or firms whom it is proposed to invite to present bids must be given. The superior instance decides concerning the modes to be adopted independently, in accordance with its honest conviction and upon its own responsibility.

(10) The preliminaries to the letting of contracts must, whenever circumstances permit, be taken so early that, in case the term first fixed expires without result, a second can be given or another method adopted for obtaining what is needed. Allowance must also be made for the period intervening between the call and the end of the term for handing in the bids. For articles which belong to ordinary trade, and which can be had in the place itself or in its neighborhood, a period of three weeks is sufficient; but for deliveries and services the undertaking of which demands time-consuming preliminaries, as well as where the competition of contractors residing in other places is desired, longer terms—up to three months—can be fixed.

(11) If a large delivery in entirety or in individual parts is called for at different places, care must be taken in advance that the participating administrative officials fix the time for opening the bids on one and the same day and at the same hour.

(12) The public letting of contracts is preceded by a call for bids in the public newspapers. Such notices are, however, to be published through the official organs. The choice among the latter or the use of several of them depends upon the importance and destination of such public notice for a wider or narrower circle of the public. It is, however, left to the decision of the administrative officials, based upon their sense of duty, when circumstances make it desirable, to use for such notices, in addition to the official organs, suitable private newspapers. As a rule, such notices are to be published three times, at suitable intervals. If the competition of certain contractors seems especially desirable, the administrative officials may prepare for these separate copies of the notice.

(13) As the limited space in the public newspapers and the height of the insertion charges do not permit the publication in the notices of all the delivery or service conditions, the administrative officials must, as a rule, restrict themselves to exposing to public view in their business offices these requirements, together with the designs and samples connected therewith, calling attention thereto in the published public notices.

(14) Upon demand, and upon payment of copying fees, copies of the conditions are to be supplied to contractors. Regulations and designs connected therewith can, if several copies thereof are available, in order to diminish the copying fees, be furnished in the original, if the promise is given to return them; under certain circumstances a deposit of the amount of their value being required.

* But, so far as this is at all possible, even in cases of this sort, a schedule must be fixed showing the individual prices for the different sorts of work to be performed. If these individual prices are not fixed for an entire contract, but only for a considerable period of time, it is necessary to renew the agreement from time to time, and to restrict the same, accordingly, to a fixed period of time.

† The other provisions which fix the value limits above which the obtainment of still higher approval is required are not hereby altered.

(15) The conditions of delivery and service are drawn up by the interested administrative officials and then laid before the higher instance for examination and approval. So far, however, as these requirements have already previously been approved by the higher instance or permanently fixed, as well as in very urgent cases, it is permitted that the conditions of delivery, etc., be handed in along with the report concerning the call for bids (42), provided that, in such case, there is no important deviation from conditions of the same sort previously fixed.

(16) The conditions of delivery, etc., form the foundation for the contracts which are to be closed (47, etc.) and must therefore be prepared in clear and binding form, so that in their fulfillment no doubt as to their meaning can arise to enable the contractor to escape from his obligations in whole or in part. Sufficient care is to be taken to protect the fiscal interests, but no requirements are to be made which such interests do not urgently demand, and which, therefore, without advantage, only impede the delivery or service, and, perhaps, cause an increase of price.

(17) The conditions of delivery, etc., are either general conditions (for such cases as are of an ordinary nature, and as repeat the character of the conditions in almost all cases in which calls are issued for bids) or special conditions (for special cases requiring the issuance of unusual conditions of delivery, etc.).

(18) For the preparation of general conditions of delivery,* further information is given in exhibit "A," hereto annexed.

(19) In preparing special conditions of delivery, provisions are to be made concerning—

(*a*) The quantity of the article to be delivered. This must be stated as exactly as possible, so that the contractor can see from the amount the extent of his obligations and make his preparations accordingly. If the quantity can not be fixed exactly in advance, it is to be provided that the contractor is not to be paid for the difference between the amount actually taken and the amount roughly estimated in the contract, if such difference does not exceed 10 per cent of such estimated need, and that only the contract price is to be paid for deliveries in excess of the estimates, if such excess does not exceed 10 per cent of such estimated need. In case large deliveries are required, which can not be used at one time, and which can not well be stored, it must be stipulated that the articles are to be delivered in single lots when needed; but the beginning and ending points of the term of delivery must be distinctly fixed

(*b*) The character of the articles. If for this purpose existing regulations are referred to, a copy of the regulations, completed and corrected, must be furnished with the prescribed conditions. So far as possible sealed samples of the articles to be delivered are to be exhibited. In what appear to be suitable cases, the contractors can also be required to hand in samples; in such cases the size of the samples and the time for sending them in are to be prescribed before the bids are considered. In measuring the size of the samples allowance is to be made so that after the tests are made a sufficient quantity will remain over to be used for purposes of comparison in connection with subsequent deliveries.

(*c*) The character and extent of the supervision of the deliveries and the regulations upon which such supervision is based.

(*d*) The place at which the contractor must deliver the objects free of cost.

(*e*) The time of delivery. This is not to be made shorter than is absolutely necessary.

(*f*) The term within which substitutes must be furnished for rejected articles.

(*g*) All those points which local or other conditions make necessary or desirable. Under this heading, under certain circumstances, also fall provisions concerning the appointment of an impartial commission of umpires to decide upon any differences which may arise (20), responsibility (21), and conventional fines (29).

If, in the purchase of machines, it is stipulated that the purchasing officials shall supply to the contractor laborers to assist in mounting, transporting, etc., the machines, the following provision must be made: The contractor accepts this assisting force entirely as if it were his own, and obligates himself, if one of his duly authorized agents or representatives or one of

* What is said as to deliveries has analogous application to services.

the persons appointed by him to oversee the work, by a fault in executing the arrangements, causes the death or bodily injury of any such employé, according to section 3, etc., of the imperial law of June 7, 1871 (Imperial Law Journal, p. 207), for the damages thus arising.

(20) An appeal to the courts in case of disagreements concerning the quality of articles delivered must not be forbidden by the conditions of delivery. But the obligation is to be laid upon the contractor, both as plaintiff and as defendant, to bring the case before the court of the place in which the contracting officials have their seat. In letting contracts for articles whose fitness for use can be decided upon without special military technical knowledge, it is advisable in the conditions—without mentioning judicial recourse—to provide for the creation of an impartial commission of umpires to decide differences which may arise.

(21) In connection with deliveries and services,* the binding responsibility of the contractors for the fulfillment of their contract, and particularly for the thorough and perfect character of the work and of the material, can be fixed by stipulation when the fiscal interest seems to require it. In such a stipulation, it must be distinctly stated that the contractor will not be freed from his responsibility by the fact that the fault is not discovered at the time when the articles are delivered. In connection with deliveries of iron, steel, and all metals, as well as of all raw articles produced therefrom, whenever it is at all possible, the obligation must be imposed upon the contractor to take back material which, in subsequent processes of manufacture, are found unsuitable for use, and to replace the same free of charge within a reasonable period of time.

(22) In connection with contract deliveries the contractor is answerable with his entire fortune for the punctual fulfillment of the contract. In addition thereto, for the special security of the fiscal interest, the deposition of a bond of one-tenth the value† of the delivery, reduced as far as possible to round numbers, in the form of interest-bearing papers, is to be required.

When a contractor, solely to avoid converting into money a valuable paper, offers as security a higher sum than that called for in the conditions of delivery, the excess may be accepted or given for safe keeping to the administrative authorities of the army. The same forms a part of the security, and the administrative authorities mentioned are responsible therefor. But if the contractor wishes to deposit the higher sum, or to place it in one of the army administration treasuries, without making the administrative authorities of the army responsible for the amount in excess of the sum required, this is to be permitted.

(23) As security deposits are to be accepted only cash, which bears no interest, and the following valuable papers:

(*a*) Bonds of the German Empire or of a German federal state, issued in accordance with law.

(*b*) Bonds, the interest on which is legally guarantied by the German Empire or by a German federal state.

(*c*) Stocks of Prussian mortgage banks.

(*d*) Bonds of German communal corporations (provinces, counties, townships, etc.), or of their credit institutes, capable of being cashed by the holder or subject to regular amortization.

(*e*) Savings-bank books of public officially recognized savings banks.

(*f*) Secure mortgages.‡

Furthermore, the managing officials can, upon their own responsibility, accept in lieu of small security sums amounting to less than 150 marks ($35.70) the bond of persons recognized in the place as safe and able to pay.

* Deliveries and services in connection with building operations are not hereby covered, as special provisions apply to such deliveries and services.

† If the contract to be let is for an unfixed quantity, the value of the delivery is to be estimated upon the basis of the probable need or of the experience of preceding years.

‡ As secure, in the sense of this provision, are to be regarded only such mortgages as are given with State approval.

(24) In connection with direct negotiations or purchases (7) the security is to be deposited when the contract is made; in connection with calls for bids, when the approval of the higher instance is given, or, in case the contract is made without first obtaining such approval, as soon as possible after this approval is given. But where it appears necessary, the bidder, for whose bid it is intended to seek the approval of the higher instance, may be required to deposit his security as soon as he is informed of the result of the consideration of the bids, domestic contractors within eight days, and foreign contractors within fourteen days, reckoned from the time when such notice is given them.

(25) The security is to be deposited in the treasury of the interested managing officials, and is to remain in their keeping until the contract is completely fulfilled. The coupons of valuable papers which are deposited as security will belong to the security depositors only for that space of time in which the deliveries are to be made, and also for the guaranty period, if such exists. On the other hand, along with the security must be deposited the coupons not falling due within this period, as well as those to whose holder the new coupon series will be delivered. In special cases the contractor can be obliged either to pay in the security, on account, at the Imperial Bank, or to deposit valuable papers in the bureau for valuable papers in the Imperial Bank. The certificate of deposit issued thereupon he must surrender to the officials letting the contract, together with a declaration, prepared in duplicate and addressed to the Imperial Bank, certifying that the deposits are pledged to those officials, and are to be surrendered only upon their demand.

(26) Upon depositing his security, the contractor is to be given a certificate of deposit by the treasury management. The latter is to be returned, bearing a receipt indorsement, when the security is returned. When it is agreed by contract that the security is to be surrendered back to the contractor in installments, instead of the returned certificate of deposit, a new one is to be given covering the sum remaining on deposit.

(27) In cases in which an obligation of responsibility is imposed upon the contractors (21), it must be distinctly stipulated if, as usual, the security is to be returned to the contractor after he has finished his deliveries or services and after accounts have been settled, or if the same, wholly or in part, is to remain deposited until the end of the guaranty period.

(28) If the contractor does not punctually fulfill his obligations, the contracting officials, in so far as is not otherwise provided by the laws of the land, have the right to obtain the articles needed elsewhere and to use, without question, the deposited security to cover the additional costs thereby incurred, and for this purpose to convert into cash, at prevailing exchange rates, the securities, in so far as they consist of papers which it is possible to treat in this way. According to the civil code, security remains the inalienable property of the person who deposits it until the dispute is settled in court. According to the state law of the Grand Duchy of Baden, the provisions of this law are binding for security given in the form of chattel pledges. But if the security consists of cash, to such security apply the administrative regulations fixed for the civil officials of the Grand Duchy of Baden.

(29) For deliveries and services where a delay in fulfillment would lead to special injury to fiscal interests, according to circumstances, conventional fines can also be fixed. Use is, however, to be made of this means of securing the fiscal interest only in urgent cases; and even then the conventional fines are to be regulated in such a way as to correspond with the actual losses, so that the delivery contracts will not be made unnecessarily oppressive.

(30) When bids are called for, the bids must be handed in in the form of written offers, and to this special attention is to be called distinctly in the published notices. The offers must be handed to the managing officials, closed as if for the post, up to the day and hour fixed for their opening, and, in order to prevent their being opened before that time, in addition to the address they must bear the remark, "Bid for delivery of," etc.

(31) The offers, which in the statement of prices must contain neither erasures nor stricken-out passages, must be prepared in distinct, unequivocal terms, and must give, in German money, the unit price of the articles offered, stated, not in figures, but in writing. Furthermore, an agreement to comply with the conditions of delivery is to be expressed in the

offer. Indistinct offers, *e. g.*, offers to make deliveries for a certain amount less than the lowest offer, and restrictions not mentioned in the conditions of delivery, must not be made in the bids.

(32) Offers which do not comply with these requirements, as well as those whose accompanying samples are rejected, and delayed offers, *i. e.*, offers received after the beginning of the opening of the bids at the time fixed therefor, can not be considered.*

(33) At the hour fixed the bids received are to be opened† in the business office of the managing officials, read aloud, the offers compiled in tabular form, and the lowest bidder ascertained.

(34) The bidders are to be permitted to be present in person when the bids are opened or through a representative bearing a written power of attorney.

(35) Concerning the transaction a short report is to be drawn up, in which the lowest bid is to be recorded in figures and in written words, and the same is to be signed by the managing officials present at the meeting. The bidders or their representatives present may also affix their signatures if they desire.

(36) When, in answer to a call for bids, several contractors appear with equal offers as lowest bidders, they are to be invited to reduce to writing their prices, a near date being fixed for the purpose, at which meeting their presence is in like manner to be permitted. If the competitors or their representatives are all present at the meeting, the written reduction of the price can be presented at the meeting itself. If one does not accept the invitation to reduce his price, or if, after the reduction, the prices offered are still equal, the delivery in question—in accordance with the nature of the case and the opinion of the higher instance‡—is either, after previously coming to an agreement with them, to be divided in equal parts among all the lowest bidders, or, upon the basis of a decision by lot,§ given to one of the lowest bidders.

(37) The letting officials must notify the lowest bidder of the result of the meeting at which the bids were considered. If he is personally present at the meeting the notice can be given verbally, and by a note in the minutes of the meeting; otherwise the notice must be given in writing.

(38) The lowest bidder is bound to his bid and can not escape from closing the contract by objecting to the conditions of delivery. If several articles of different sorts are called for simultaneously, the lowest bidder for each separate article is bound to his bid and can not withdraw the same on the ground that the entire delivery was not given to him. If the approval of the contract, and, in the cases in which the closing of a contract is not required (47 and 48*a*), the word of consent is, without fault of the lowest bidder, delayed more than four weeks—exclusive of the time required for obtaining the contract signature of the contractor—reckoned from the day on which the bids were considered, the contractor is free to withdraw his bid.

(39) The transfer of delivery obligations from one contractor to another by their mutual consent is permissible only with the approval of the higher instance.

(40) The managing officials assume, through having held a term for considering bids, only the obligation, prior to the rejection of all the bids received, to negotiate for a delivery of the articles in question with no one other than the lowest bidder.

(41) The acceptance of the lowest bid and the binding obligations of the official treasury based thereon to the lowest bidder do not go into force until the approval is granted, or until consent is given to contracts (43) made without previously obtaining approval.

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*If for the reasons above given bids are not considered, notice thereof must be given to the interested bidders, to avoid, as far as possible, a repeated rejection of their bids for the same reason.

†Bids of which the accompanying samples are rejected and bids handed in too late are to be handed unopened to the higher instance officials along with the minutes of the meeting at which the other bids were opened.

‡Such offers the managing officials must present to the higher instance officials along with the minutes of the meeting at which the bids were opened (42).

§As lots (which are to be drawn by a subordinate of the officials letting the contract) strips of paper are to be used, upon which are written the names of the competing lowest bidders. The papers are to be so folded that outwardly they can not be distinguished one from another.

(42) The managing officials transmit the minutes of the meeting at which the bids were opened, together with the conditions of delivery, the original bids* and the table prepared in explanation thereof where there was a public call for bids, and also proof copies of the public notice, to the higher instance and request in the accompanying report either approval to the closing of the contract or the granting of consent or the rejection of the bid. For the proper preparation of this application an exact knowledge in regard to acceptable prices is necessary, and it is therefore a special duty of managing officials, and particularly of their chiefs, as far as possible, to keep themselves posted in regard to the fluctuations in the prices of the articles needed. If the rejection of a bid is requested, suggestions should be made as to what further steps should be taken toward letting the contract.

(43) If, after careful consideration, the managing officials find the closing of a contract advantageous to the fiscal interest, they can, in order to cut short correspondence and save time, at once close the contract, subject to approval, and lay the same before the higher instance for approval simultaneously with the report concerning the bids. But in such case the attention of the contractor must be specially called to the fact that the obligation of the official treasury does not become binding until the contract is approved (41).

(44) The higher instance then, upon its own judgment and upon its own responsibility, either approves the lowest bid or consents to a contract (43) closed without previous approval, or, upon the ground of the reservation of right contained in the conditions, rejects the bids and gives its decision as to what further steps shall be taken toward letting the contract.

(45) The rejection of the bids can take place when (as well in connection with a public as with a restricted call for bids) the lowest bid obtained does not appear acceptable or when other sufficient grounds therefor exist. If, in connection with a public call for bids, the reliability of the lowest bidder is suspected, and if this is taken as a ground for withholding approval and rejecting the bids, this suspicion must be based upon something actual, such as failures in connection with previous deliveries,† the disturbed condition of the contractor's finances, etc.

(46) Delivery agreements with other officials are to be opened and closed merely by correspondence.

(47) Deliveries and services by private persons resulting from a call for bids are to be fixed through formal contracts containing all the conditions of delivery, etc., when the value of the delivery or service exceeds 300 marks ($71.40). Where it is required by state law, a written agreement is to be made even in connection with smaller values.

(48) Direct purchases, in so far as they are permitted by 7 or are allowed by the higher instance, can be made without the previous signing of a contract when the amount involved does not exceed 1,000 marks ($238). When the value of the purchase exceeds this sum, the conditions of the purchase must in advance be thoroughly discussed and fixed by contract. If, in individual cases of the latter sort, the signing of a contract is absolutely impossible, or if it will result disadvantageously to the fiscal interest, the consent of the Ministry of War to the effecting of the purchase without first signing a contract is to be specially sought.

(48*a*) The formal contracts prescribed in 47 and 48 can be omitted in connection with simple deliveries of materials—

(*a*) When the contractor belongs to the class of merchants in the sense of the commercial code (articles 4, 5, 6, 271, etc.).

(*b*) When the delivery is entirely completed within three months from the time the order is given.

(*c*) When, under the circumstances, the deposition of security can, without risk, be dispensed with (22).

*The bids must be fastened together in an orderly way and given serial numbers. In regard to the delivery of offers, the samples belonging to which have been rejected, see 33.

†When a contractor makes deliveries which are so unsatisfactory that similar deliveries can not again be accepted, the higher instance must notify him, so that he will not in future participate in such competitive bidding.

(49) In drawing up contracts the form prescribed by law is to be followed, and due regard is to be given to clearness and distinctness in form and expression.

(50) Contracts must contain the following points, so far as the same have not already been mentioned in the delivery conditions:*

(*a*) The names of the contracting parties.

(*b*) The date of the consideration of the bids which led to the closing of the contract, and the remark that the contractor was the lowest bidder, or the statement that the contract is made in consequence of a free agreement between the contracting parties.

(*c*) A detailed description of the delivery or service.

(*d*) The time and place of delivery.

(*e*) The prices agreed upon.

(*f*) Provisions in regard to the character of the articles to be delivered, their inspection and acceptance, as far as possible reference being made to the regulations provided in connection therewith.

(*g*) Provisions concerning the replacement of articles found to be unacceptable.

(*h*) Arrangements for payment.

(*i*) Guaranty of delivery on the part of the contractor, the amount of the security to be deposited, and privileges of the official treasury in event that the contractor does not fulfill his obligations.

(*k*) Obligation of the contractor to bear all secondary costs arising from the delivery, as well as to pay for the required revenue stamps, etc.

(*l*) Reservation in regard to the approval of the contract by the higher instance.

(*m*) Statement as to how many copies of the contract are made and for whom.

If the conditions of delivery contain the necessary provisions, the contracts can be drawn in accordance with the model hereto attached (exhibit "B").

(51) In contracts, important numbers, especially such as refer to the quantity of the delivery and the prices agreed upon, must be written not only in figures, but also in words. Erasures are absolutely forbidden, and changes by crossing out and insertions are to be, as far as possible, avoided. Where they occur they must be certified by postscripts or marginal notes signed by the contracting parties.

(52) Contracts must be signed and sealed by both contracting parties. Instead of a seal the managing officials may use their colored stamp and the contractors their firm stamp. If the contractor uses neither firm stamp nor seal, he must make a signed note of this fact.

(53) Inclosures belonging to contracts and which are to be attached to them must be clearly marked as such, and, for certification and recognition, signed by both contracting parties, even when such inclosures are written on the same sheet of paper as the contract

(54) Contracts are to be prepared in duplicate, of which, according to stipulation, the principal copy is to be retained by the officials and the duplicate copy handed to the contractor. If the contractor, where this is permitted by state law, waives his claim to a copy of the contract for his own use, the preparation of a duplicate copy can be dispensed with.

(55) The revenue stamp required by law is not to be affixed until the contract is approved, which fact is to be noted on the contract, together with a statement of the money value of the stamps required.

(56) In presenting a contract for approval the managing officials must annex to their report in regard to the bids an authenticated copy of the contract and of the tabulated statement of bids, and must deposit the same, when the higher instance deems it necessary and demands it, among the archives of these last-mentioned officials.

(57) Canceled.

* The delivery conditions signed by the contracting parties are to be attached to the contracts, with the express statement that they shall have the same force as if they were contained in the body of the contract itself.

(58) In the letting of contracts for new buildings and for building repairs, so far as the same is effected by the managing officials for whom these regulations are provided, the foregoing provisions have only an instructive force, as in such cases the business regulations for garrison-building enterprises apply.

BERLIN, *June 8, 1878.*

EXHIBIT A.

General conditions of delivery and information for delivery contractors.

(1) In connection with the letting of contracts offers must be made only in the form of written bids. The latter must, before the expiration of the period fixed for their delivery, be handed in, sealed as if for the post, to the undersigned letting officials, and, so that they may not be prematurely opened, the envelope must bear the words, "Contract, letting of," etc. These bids, which in their statement of prices must contain neither erasures nor scratched-out passages, must be prepared in clear, perspicuous terms and must give in words the unit prices of the articles offered, quoted in German monetary values. Moreover, in the bids an acceptance of the delivery conditions is to be expressed, the conditions being open to inspection in the office of the letting officials, and copies thereof being furnished to would-be contractors upon demand and upon payment of the writing fees. Indistinct offers, *e. g.*, an offer to make the delivery for a certain amount less than the offer of the lowest bidder, and reservations not warranted by the delivery conditions, must not be made in the bids. Bids which do not satisfy these requirements, as well as those whose samples (2) are rejected, and delayed bids, *i. e.*, offers handed in after the opening of the bids has been begun at the time fixed therefor, can not be considered.

(2) If the handing in of samples along with the bids is required, in order that they may be tested, they must be handed in in every case before the contract is let (or, in special cases, within a period fixed in the delivery conditions), in the quantity demanded by the letting officials. They must be marked clearly and in such a manner that there may be no doubt as to which bid they belong. So far as the samples are useful and of value, after deducting what is lost in the tests, the competitors are to be credited with the value of the remainder, estimated, at the highest, at the price of that competitor to whom the contract is given; but the letting officials must reserve the right of returning to those competitors to whom the contract is not given the remainder of their samples without payment for the part used in the tests. The costs for sending in and returning the samples are borne by the contractor.

(3) The bids received, with the exception of those whose samples are rejected after being tested, are opened at the hour fixed in the bureau of the letting officials, read aloud, the bids reduced to tabular form, and the lowest bidder ascertained. The competitors may be present in person at the opening of the bids or by a representative furnished with a written power of attorney. Short minutes of the meeting are to be prepared, which the competing contractors may sign if they desire. The letting officials must at once give verbal or written notice of the result to the lowest bidder. They are under no obligation to give such notice to the other competing contractors.

(4) If, in connection with the letting of a contract, several contractors appear with equal bids as lowest bidders, they are to be invited within a short fixed period to reduce their prices in writing. If all the interested lowest bidders are present, this written reduction of prices can take place then and there in the meeting. If no answer is made to such invitation, or if, after the reductions, the prices still remain equal, according to circumstances and according to the decision of the instance superior to the letting officials, the delivery is to be divided among all the lowest bidders, after previously coming to an agreement with them, in equal parts, or it is to be given to one of the lowest bidders on the basis of a decision by lot. The competing lowest bidders can, if they wish, be present at the opening of the revised bids or at the drawing of the lots.

(5) The lowest bidder is bound to his bid, and can not escape from the execution of a written contract based upon the conditions of delivery. If several different sorts of articles are called for simultaneously, the lowest bidder for each separate article is bound to his bid. He can not withdraw his bid on the ground that the entire delivery has not been given to him. Should the approval of the contract (7) without fault of the lowest bidder be delayed over four weeks, exclusive of the time consumed in obtaining the contract signature of the contractor, reckoned from the day on which the bids were considered, the contractor is free to withdraw his bid. A transfer of delivery obligations from one contractor to another, with their mutual consent, can not take place unless the consent of the higher instance can be obtained.

(6) The letting officials assume, by opening the bids, the obligation not to give the contract to anyone other than the lowest bidder until the bids have been finally rejected. But this rejection can be ordered by the higher instance without further formality and without any statement of reasons, if approval has not already been given, or if consent has not already been given to a contract which was closed without first obtaining approval. The acceptance of the lowest bid, therefore, and the obligating of the army management to the lowest bidder do not become binding until after approval is granted, or until consent is given to a contract entered into by the managing officials without first obtaining the approval of the higher instance.

(7) The contract must be signed and sealed by both contracting parties. Instead of a seal the letting officials can use their colored stamp and the contractor his firm stamp. If the contractor has neither firm stamp nor seal, he must make a note of this fact under his signature. The delivery conditions, which are to be attached to the treaty, are likewise to be signed by the contracting parties. The contract is to be made in duplicate, of which the chief copy is to be kept by the letting officials and the secondary copy given to the contractor. If the contractor waives his claim to a copy of the contract for his own use, a duplicate copy need not be prepared. The contract goes into force after it has received the approval of the higher instance. The letting officials, however, have the right to withdraw from the contract so soon as it is proved that the contractor, before the contract was let, made an agreement with other persons to prevent their competition or otherwise, to effect an injury to the interests of the army management.

(8) The contractor must bear the costs of revenue stamps, as well as all other secondary costs, such as charges for freight, unloading, and postage. The cost of advertising is borne by the letting officials. The revenue stamps required by law need not be affixed until the contract is approved.

(9) To secure the complete fulfillment of his contract obligations, and to protect the army management against any and every injury which may be caused by the failure of the contractor in any way to fulfill the requirements of the contract, he is responsible with all his property, and must also deposit security to the extent of one-tenth of the value of the delivery. From this latter obligation he can be released by the approving officials only when special reasons therefor exist. The security must be deposited after the approval of the before-mentioned officials has been given, or, in case the contract was closed without approval having been previously given, as soon as possible after consent has been given to the contract. As security can be given only cash, which bears no interest, and the following valuable papers:

(*a*) Bonds of the German Empire or of a German federal state issued in accordance with law.

(*b*) Bonds the interest on which is legally guarantied by the German Empire, or by a German federal state.

(*c*) Stocks of Prussian mortgage banks.

(*d*) Bonds of German communal corporations (provinces, counties, townships, etc.), or of their credit institutes, capable of being cashed by the holder or subject to regular amortization.

(*e*) Savings-bank books of public officially recognized savings banks.

(*f*) Mortgages which seem to the letting officials secure.

When the security to be deposited does not amount to more than 150 marks ($35.70), instead of the same the letting officials may accept the bond of persons recognized in the place as safe and able to pay. The security is to be deposited in the treasury of the letting officials, and is to remain in their keeping until the contract is completely fulfilled.* The coupons of valuable papers which are deposited as security will be left to the security depositors only for that space of time in which the deliveries are to be made. On the other hand, along with the security must be deposited the coupons which do not fall due within this period, as well as those to whose holder the new coupon series will be delivered. Upon depositing the security the contractor is to receive a certificate of deposit from the treasury management. The return of the security can be obtained only by surrendering this certificate, indorsed with a receipt. When it is agreed by contract that the security is to be surrendered back to the contractor in installments, instead of the returned certificate of deposit, a new one is to be given covering the sum remaining on deposit. If the contractor does not punctually fulfill his obligations, the letting officials have the right to use, without restriction, the security for fulfilling the object of the contract, and, when necessary, can sell the valuable papers which were deposited as security at prevailing exchange rates.

(10) The contractor has the right to be present in person or by representative at this testing and accepting, and it is his business, by inquiring of the letting officials, to inform himself in time when and where such test is to take place. If the testing of the entire mass of a delivery necessitates too much expense and loss of time, *e. g.*, the chemical examination of metals, the testing of liquids in various vessels, etc., the testing of a part of the delivery, whose extent shall be fixed by the officials, may suffice for the entire delivery. For the articles accepted as fit for use payment is to be made in cash or credit in return for receipts prepared in the prescribed form. If delivered articles are declared by the testing committee unsuitable for use, the contractor is under obligation to remove the same from the delivery rooms, which have been placed at his disposal, as soon as possible, and, when necessary, within a period fixed by the letting officers. If he neglects to do this at the expiration of the period fixed, such articles are to be delivered for the account and risk of the contractor to a local freighting company to be stored or returned to the owner. In like manner the contractor must replace rejected articles so soon as possible, or within a period fixed in the special delivery conditions. If this is not done, the letting officials are empowered to order the articles in question, or to purchase them, at any price, elsewhere, at the risk and expense of the contractor. The letting officials have the same right when the contractor does not punctually make his deliveries within the periods fixed in the contract. It is distinctly fixed that with the expiration of the delivery or repeat delivery periods the contractor's right to deliver is terminated, even though he has not been reminded or otherwise warned. If the articles are purchased for the account of the contractor at prices cheaper than those mentioned in the contract, the contractor has no claim to the difference between these prices.

The court of the peace where the letting officials have their seat shall have jurisdiction over all suits connected with such contracts, be the contractor plaintiff or defendant therein.

Remarks.

(1) As to 1 (bids). Where a revenue stamp must be used on the bids, a clause stating this fact must be inserted.

(2) As to 7 (contracts). The last sentence in paragraph 3 is to be omitted where the state laws do not permit the contractor to waive his claim to a copy of the contract.

(3) As to 8 (costs). The wording under 8 (costs) can be altered according to the requirements of the case where, by the registration of the contracts or by the closing of chattel pledge

*Upon demand of the letting officials the contractor is under obligation either to pay the security into the Imperial Bank or to deposit valuable papers in the bureau for valuable papers in the Imperial Bank, and they must surrender the certificate of deposit, issued thereon, to the letting officials, together with a declaration prepared in duplicate and addressed to the Imperial Bank, certifying that these deposits are pledged to the letting officials and are to be surrendered only upon their order.

contracts (28 of the regulations), costs arise, or where the use of revenue stamps on the contracts is not required.

(4) As to 9 (security). The last sentence is to be omitted where state laws do not permit the free use of the security to accomplish the purpose of the contract so soon as the contractor does not punctually fulfill his obligations.

(5) As to 10. When it seems necessary to deprive the contractor of his claim to the privilege of being informed of an intended securing of the articles elsewhere and of being granted an additional term for delivery, to the next to the last paragraph is to be added the following: "The contractor distinctly waives his claim to the notice prescribed in article 356 of the commercial code, as well as to the granting of any additional terms in which to make his delivery."

EXHIBIT B.

Form of contract where the delivery conditions attached thereto cover all necessary points.

After approval will be paid: Marks.

For revenue stamp for principal copy..... ——

Also for revenue stamp for security instrument..... ——

For revenue stamp for duplicate copy..... ——

Contract between ——— and ——— on the basis of ——— the following contract is closed:

(1) ——— obligates himself, free of secondary costs, to deliver the following articles at the prices fixed: ———, ———.

(2 *) ———, ———.

(3) The general and special delivery conditions attached to this contract have the same force as if they were contained in the body of the contract.

(4) In faith whereof, both parties have personally signed and sealed the present contract, prepared in duplicate.†

——— the ——— day of ———, 18—.

EXHIBIT C.

Special conditions for the delivery of rifle and carbine straps.

(1) The quantity to be delivered amounts to ———.

(2) *Character and nature of inspection.*—The rifle straps are to be made of natural-brown sleeked leather. The same are to be grooved on the hair side in the same manner as the model supplied. The leather used must be well tanned, must have a perfect grain, and must not be, even on the meat side, scratched or burdened with loose fibers. It must not crack when bent or folded with the hair side out. The fatty ingredients of the leather must not exceed 10 per cent. The color of the leather must be as uniform as possible, and, where cut, nutmeg brown. The use of beautifying materials, which are soluble in water, as well as the treatment of the leather with tallow, bole, or with materials which increase the weight, such as heavy spar, protoxide of lead, glycerine, or potato sugar, is forbidden. The mount-

* In 2 is to be stated the amount of the security or the fact that the contractor is relieved from the necessity of giving security.

† If no duplicate copy is prepared, the necessary change is to be made in the wording of 4.

ings and buckles must be made of faultless material, and must show no defects. The measures of all the parts must correspond exactly with the table of measures supplied herewith.

(3) *Samples.*—The rifle straps sent to the contractor under the ——— shall serve as a model.

(4) The price is to be given.

(5) The delivery is to be made in parts in such manner that the last delivery shall be made at latest ———, reckoned from the day of the receipt of the order by the contractor. The order will be given telegraphically.

(6) The period allowed for replacing rejected articles is eight days, reckoned from the day on which the notice is received.

(7) The fitness of the delivery for use the contractor leaves to the decision of the workshop inspecting committee.

——— the ——— day of ———, 18—.

THE MANAGEMENT OF THE ARTILLERY WORKSHOP.

——— the ——— day of ———, 18—.

THE CONTRACTOR.

EXHIBIT D.

Special conditions for the delivery of harness and stable articles for the royal artillery workshop at Spandau.

(1) There are to be delivered ———. The contract will be let to the lowest bidder, with reservation of the right to accept bids for partial deliveries. Partial-delivery bids are permitted.

(2) All of the harness and stable articles must correspond exactly with the samples; they must be well made, strong and durable, and of the best, faultless, and sound material. The leather used (brown sleek leather) must be well tanned, firm but not stiff, must have a uniform brown color (without being artificially colored) and must be very little greased. The meat side of the leather must show no loose fibers, nor must it be mixed; the hair side must have no black spots or lusterless parts. In bending (folding) the leather with the hair side outwards, no cracks must appear. When the leather is pressed no grease must appear on the surface. Cuts, places grainless, flawed, or which through soaking have become too soft or spongy, are not permitted. Furthermore, the leather used must not in any way have its weight artificially increased. The ropes must be composed of sound and sufficiently long material (hemp or flax) which has been properly prepared; they must have the same number of twists of the threads and cords as have the sample model, and must be delivered in dry condition. The harness mountings must be of good and solid wrought iron; malleable cast iron is not permitted. The same must be free from breaks, cracks, or other defective parts. In connection with lacquered mountings, the work must be neatly done; the lacquer used must be of a deep black color, and must have a fine luster; it must neither spring at a low temperature nor become sticky when it is hot. In connection with tinned mountings, the tinning must be uniform, and there must be no rusty spots. Incomplete or badly welded harness mountings, in which the welded parts are considerably thicker than the adjacent parts, can not be used. The catches of the buckles must be movable, but not too large. Portmouthed bits, snaffle bits (with chains), and curbs, and stirrup irons are to be delivered polished. For the thickness measurements a margin of +10 per cent is allowed. The sewing stitches must be as regular as possible; they must not be fewer than in the sample model.

(3) *Samples.*—The person to whom the contract is given must, before beginning to make a delivery, as early as possible, present a sample of the delivery for inspection to the undersigned directing authorities.

(4) Time of delivery.

(5) The price is to be given for ———.

(6) Rejected articles are to be replaced within ——— days after notice is given.

(7) The decision as to the fitness for use of harness and stall articles delivered the contractor leaves to the workshop inspecting committee.

SPANDAU, the ——— day of ———, 18—.

THE MANAGEMENT OF THE ARTILLERY WORKSHOP.

ITALY.

The supplies required for the Italian army are, as a rule, prepared in the military workshops, the raw materials being furnished by the trade. These materials are acquired (1) by inviting the general public to bid for Government contracts, (2) by inviting certain parties to hand in bids, and (3) by private contract. The economical and technical demands dictate which of the three systems of purchase shall be adopted.

(1) *Public contracts.*—This method is used for the acquisition of such supplies as are found in the open market, and for the furnishing of which the general public is invited to bid. Notice is given of the time and place, when and where the awarding of the contracts is to take place, with a statement showing the articles wanted, the amount required, and the conditions to be observed. There is a special military workshop at Turin that turns out samples of articles of equipment intended as models. The articles furnished by the purveyors must come up to these samples in quality and in every other respect. At the appointed time a special commission meets, with open doors, and proceeds to register the bids received either by mail or handed in at the meeting, and adjudicates the contract to the party who makes the most advantageous unconditional bid, which bid must be higher than the lowest figure established by a sealed memorandum from the Minister of War, which memorandum is opened after all the bids have been received. To explain: The Government wants so many articles, with a discount on the starting price of, say, $20 for each. The Minister of War having fixed in his sealed memorandum, let us say, $15 as the price he is willing to give, the contract will be awarded to the party whose bid comes nearest (but not below) $15, the established price, other conditions being equal. In case no bid is received, or in case the lowest figure fixed by the Minister is not exceeded or even attained, the letting of contracts is declared closed, and resort is had to private contracts for the furnishing of supplies, unless it be deemed more advisable to again invite bids from the public.

(2) *Contracts requested.*—This method obtains when such articles as brass, iron, and steel of a particular quality are wanted, as it is found more expedient to purchase them from the manufacturers, the latter offering, from an economical as well as technical point of view, greater guaranties for the thorough carrying out of the contract. This method consists in sending specifications to parties, either national or foreign, who are considered to be in a position to carry out the contract, requesting them to return the same after naming the price at which they are willing to undertake the job. In

sending out these specifications great precautions are used to prevent a possible combination among manufacturers which might result in a loss to the Government. The bids are opened in public on the day and at the hour fixed in the invitation sent to the bidders, and the commission awards the contract (but only in case two bids at least shall have been sent in) to the party presenting the best unconditional bid.

Private contracts.—This method consists in treating with a private party or firm when the urgency of the case so requires, or when the articles desired are patented.

It should be added that it also happens that certain articles are not prepared in the military workshops, but by manufacturers, according to a schedule established by the "administration," which schedule fixes the amount of raw material and the amount of labor required for the work. The contract is awarded to the party who offers the greatest reduction on the price established for "labor required."

The "general directory" of artillery and engineers provides arms and their accessories for the whole army. There are special military establishments for the manufacture of arms, powder, etc. There are two arsenals of "construction" (Turin and Naples), four manufactories of arms (Turin, Brescia, Terni, and Torre Annunziata), three foundries, (Turin, Genoa, and Naples), two powder mills (Fossano and Scafati), and two pyrotechnic laboratories (Bologna and Capua).

For the accessories (belts, cartridge boxes, etc.) the above-named "general directory" provides, through contracts publicly awarded or with private parties.

The corps commanders of all arms are empowered to provide directly all articles necessary to replace articles declared unfit for use (for example, trumpets, musical instruments, lanterns, buckets, saddles, traces, etc.). Such purchases are made by private contract.

I forward a small volume,* entitled "Istruzione sulla stipulazione dei Contratti per i Servizi dell'Amministrazione della Guerra," or "Regulations Concerning Contract Stipulations for the War Department," which contains the forms to be observed in the making of contracts, a statement of the treasury dues for the registration of contracts, for copies of contracts, for advertising expenses, and forms of the bonds to be filed by the contractors.

The letting of contracts for supplies, such as harnesses, knapsacks, scabbards, and other accouterments in which harness and saddlery leather is used, follows the same forms as for other supply contracts.

The "military administration" purchases in the open market such leather as is worked up in the military workshops. Harness leather, sole leather, and leather for uppers are paid for according to quality and weight. Calfskins and sheepskins are bought by the piece, and are divided into three classes. The skins of the first class must be 27 inches wide and 34 inches long; second class, 26 inches wide and 30 inches long; and third class, 24

*This volume, together with some "specifications," is filed in the Bureau of Statistics, Department of State.

inches wide and 28 inches long. The leather must neither have been burnt by lime nor tanned by means of acids, and must not show indications of having been taken from a diseased animal. White leather must show a thickness of from fourteen to eighteen hundredths of an inch, and each side must weigh from 8½ to 13½ pounds. Harness leather must show a thickness of from eighteen to twenty-four hundredths of an inch, and sole leather a thickness of from eighteen to twenty hundredths of an inch.

Alum is used in dressing calfskins prepared with the hair on. The flap of the knapsack, which should be of one piece, is obtained by cutting right across the calfskin. In every one hundred calfskins there should be thirty measuring 27 by 34 inches, fifty measuring 26 by 30 inches, and twenty measuring 24 by 28 inches. Fifty out of every hundred calfskins should show the hide of the legs down to the knee.

The visors for soldiers' caps are made of patent leather, from twelve to sixteen hundredths of an inch thick, and japanned on both sides.

Dressed sheepskins must measure 35 by 27 inches, and weigh on an average 15 pounds per dozen.

WALLACE S. JONES,

ROME, *December 4, 1893.* *Consul-General.*

RUSSIA.

I have taken a good deal of pains to investigate this question, and I find that it will be practically impossible to give all of the steps necessary in the making of a contract of a special nature.

A contract for army supplies, particularly harnesses, knapsacks, scabbards, and other accouterments in which saddlery leather is used, would have to be made upon the general lines of all other forms of Government contracts. I can do no better, therefore, than give a description of the regular methods of letting contracts in Russia.

I wish to say at the outset that I have talked with prominent officials in the ministries of Finance, of War, and of the Marine, as well as with the representatives of English and French manufacturing houses who have been successful in placing for their respective firms large contracts with the several ministerial departments of the Russian Government.

It may be said that contracts are made here in all of the departments practically on the same lines as in England. For example, if the Ministry of War desires any sort of army supplies, such as those mentioned above, tenders are asked for by the director in charge of that branch of supplies. These tenders are either made direct to well-known and responsible houses, at home or abroad, manufacturing the special line of goods, or they are made through the local agents of such houses. It is considered advisable to have a respectable and competent agent on the ground, in order, in a general way, to bring the firms making the tenders in closer relation with the director or committee charged with letting the contract in question, to

answer special interrogatories and to report possible modifications and changes. These tenders are sent in to the ministry, and are laid before the technical committee. It may be said that there is a technical committee for every possible line of supplies, whose business it is to examine carefully the tenders and applications coming under their special departments. Those proposals that are favorably reported upon by the technical committee are then referred to the supply department in question, where the contract is let. If two sets of proposals are practically equal, the contract will be given to the firm making the lowest bid, assuming, of course, that both firms are equally responsible and capable. It often happens, however, that the supply department lets contracts to firms which are not the lowest bidders, simply because such firms have larger experience and better facilities for filling the contract to satisfaction. That is to say, the character of the firms sending in tenders has much to do with the success or failure of the application. As said before, however, all other things being equal, the contract will be awarded to the lowest bidder.

With reference to making a contract for army supplies, as mentioned in the Department instructions, I can only say that firms in the United States desiring to make such a contract should first ascertain whether the supply department of the Ministry of War will consider their tenders to that end; or, in other words, whether the Ministry of War has any need for such goods, and if so, whether it is willing to place a contract to that effect outside of the Empire. Such firms should, of course, furnish the very best of references, not only as to their financial and business standing, but should be able to give also acceptable references to the effect that they have had large experience in this line, and that they have the very best facilities for manufacturing the goods in question. Their applications, drawings, estimates, or, in general, their proposals, should be drawn up and presented on the same lines as for England or France.

As much has been said in all countries about favoritism and special influence in the methods of making government contracts, I wish to say that I have reason to believe that anything bordering upon irregularity of any sort in the handing in of a proposal will injure the application in this country. In fact, I may say that a gentleman who has successfully represented for many years certain English houses has assured me that he knows of no instance in which a Government contract has been let in Russia by paying for it. The same gentleman says, however, that it is quite probable, here as in other countries, that applicants are liable to be approached by subordinates, or by hangers-on at some of the departments, offering for a consideration their influence, which they always greatly overestimate. Such influence, however, if secured in the way suggested, he believes to be prejudicial to the success of the application.

J. M. CRAWFORD,
Consul-General.

ST. PETERSBURG, *December 19, 1893.*
No. 166——3.

PEANUTS AND PEANUT OIL.

At the request of the Secretary of Agriculture, the following instruction was transmitted to the consular officers of the United States at Liverpool, Marseilles, Bordeaux, Algiers, Bombay, Mozambique, Gorée-Dakar (Senegal), and Bathurst on December 30, 1894:

GENTLEMEN: The Department is informed that the manufacture of oil from African and Indian peanuts is a very important branch of industry in Marseilles, in Liverpool, and, perhaps, in Bordeaux and Algiers.

The nuts are imported into France and England under the name "arachides." They are said to be rank and oily and somewhat larger than our American variety.

In the CONSULAR REPORTS for July, 1892, Consul Trail, of Marseilles, gave a careful and interesting account of the "Manufacture of Vegetable Oils."*

It is now desired to supplement that account with reports from your district, to be published in the same journal, upon "The Peanut-Oil Industry." You are requested to tell of the extent of this industry in your respective districts, to describe the quality of the oil, the purposes for which it is adapted and used, and the use made of the residuum.

A description of the varieties of nuts used and of the processes to which they are subjected should be given, and the Department should be informed if these nuts are ground into meal. The consular officers in Africa and India are requested to describe the cultivation and character of this nut, the use that is made of it where grown, the amount exported, and to what places shipped.

I am, etc.,

ALVEY A. ADEE,
Second Assistant Secretary.

The following reports are the replies received in answer to the foregoing circular.

ALGIERS.

The consul at Algiers reports, January 31, that no such industry exists in Algiers, and that no interest is taken in the cultivation of peanuts in that colony.

BORDEAUX.

The consul at Bordeaux reports, under date of May 30, that no oil is manufactured from peanuts in that district. He further adds that while Bordeaux is one of the greatest markets in the world for olive and other oils, the entire product comes thereto by rail from Nice, Marseilles, and the littoral of the Mediterranean.

* Reports relating to peanuts and peanut oil were also published as follows: "Peanuts at Antwerp," No. 83, p. 536; "Manufacture of Vegetable Oils" (report mentioned in circular), No. 142, p. 475; "Peanut Refuse" (rich in albumen), No. 144, p. 72; "Peanuts in Mexico," No. 153, p. 160; "Manufacture of Oil and Food from Peanuts," No. 163, p. 683; "Peanut Meal in Germany," No. 165, p. 838.

LIVERPOOL.

The consul at Liverpool reports, February 14, that there are practically no peanuts pressed in that district. Occasionally, one firm presses small quantities, but nothing of interest can be reported in connection with the manufacture of peanut oil in Liverpool.

MARSEILLES.

PRODUCTION OF VEGETABLE OILS.

The production of vegetable oils is an immense industry at Marseilles, and their diversion into other products, of which they are the chief constituent, the distribution of the oils themselves, and the commodities into which they enter may be regarded as the most important factor in local commerce.

In a general way, it may be said that the process of extracting oil, whether from peanuts, cocoanuts, palm nuts, mowrah, or cotton seed, is practically the same, the variations being of a minor nature and due to the texture of the nut or seed in process of extraction.

IMPORTS OF PEANUTS.

The following table has been compiled from the official statistics of the Marseilles Chamber of Commerce, giving the amounts imported, shelled and unshelled, and the respective totals for each of the past ten years:

Imports of peanuts at Marseilles during the last ten years.

Year.	Shelled.	Unshelled.	Total.
	*Metric quintals.**	*Metric quintals.**	*Metric quintals.**
1884	516,100	335,600	851,700
1885	693,080	371,850	1,064,930
1886	743,450	131,040	874,490
1887	738,050	47,220	785,270
1888	730,610	194,750	925,360
1889	973,740	186,690	1,160,430
1890	1,030,600	208,640	1,239,240
1891	1,248,730	230,890	1,479,620
1892	733,240	279,510	1,012,750
1893	963,880	362,890	1,326,770

* 1 metric quintal=220.46 pounds.

It will be observed that much the larger portion, averaging perhaps three-fourths of the total quantity for each year, arrives at this market with the shells removed. These come entirely from India and Africa (Mozambique). The unshelled nuts are imported from Africa (including Egypt), Spain, and a very small quantity from the Argentine Republic.

The following table gives the entire quantity, in metric quintals, of shelled and unshelled peanuts imported at Marseilles during the year 1893,

with, as nearly as possible, the respective quantities from various countries and the several districts:

Imports of peanuts at Marseilles during the year 1893.

Imported from—	Quantity.	Imported from—	Quantity.
Shelled.	*Met. quintals.*	*Unshelled*—Continued.	*Met. quintals.*
Africa (Mozambique)	65,810	Africa:	
Bombay	360,420	Rufisque, St. Louis, Galam	140,350
Coromandel coast:		Gambia	44,390
Pondicherry	334,350	Rio Pungo (Rio Nunez)	210
Madras, Cuddalore, Cocanadah	203,300	Bissao (Boulama)	4,630
Total	963,880	Total	362,890
Unshelled.		Grand total	1,326,770
Egypt	162,370		
Spain and the Argentine Republic	10,940		

Virtually all of the shelled nuts, as will be noticed in the table, are imported from India, only about one-sixteenth coming from Mozambique. Of the unshelled nuts, practically all are from Africa, the larger part coming from Gambia, St. Louis, and Galam. While the quantity imported from Mozambique is but one-sixteenth of the total of shelled nuts, manufacturers regard this variety as far superior to any other for the production of oil, and for these, the average price per quintal for the year 1893 was 6 francs in excess of that paid for other varieties.

PRICES OF PEANUTS.

American growers and dealers may be interested in the value of the nut in this market and a statement is appended giving the lowest and highest prices paid per quintal during the past year for the different varieties (according to origin), shelled and unshelled.

Prices of peanuts at Marseilles during the year 1893, per metric quintal (220.46 pounds).

Description.	Prices.	
Shelled.	*Francs.*	*U. S. dollars.*
Mozambique	30.25 to 33.00	$5.84 to $6.37
Bombay	23.75 to 28.00	4.58 to 5.40
Coromandel coast:		
Pondicherry	22.00 to 27.00	4.25 to 5.21
Madras, Cuddalore, etc	22.00 to 27.00	4.25 to 5.21
Unshelled.		
Africa:		
St. Louis, Galam, etc	24.00 to 28.50	4.63 to 5.50
Gambia	21.75 to 24.00	4.20 to 4.63
Rio Pungo (Rio Nunez)	17.00 to 21.75	3.28 to 4.20
Boulama	15.25 to 19.00	2.90 to 3.67
Egypt	(*)	(*)
Spain and the Argentine Republic	(*)	(*)

*Not quoted.

METHOD OF PRODUCING PEANUT OIL.

In Marseilles and the immediately surrounding district, are seventeen factories wherein peanut oil is produced, but none of these are devoted exclusively to this particular product, all of them manufacturing, at different times by the same machinery and practically the same processes, the various vegetable oils. Extraction of oil from peanuts is, however, rapidly increasing, the quantity of nuts imported at Marseilles for this purpose during 1893 exceeding by 314,000 metric quintals (69,224,400 pounds) the importation for 1892. The relative cost of the nut, as compared with some other vegetable growths hitherto largely used for the same purpose, together with the additional and more important fact that the oil of peanuts is in every way equal, for the purposes to which all of these oils are devoted, to that extracted from competing products, renders it safe to predict that this increase of consumption will grow from year to year.

The general method of producing the oil is substantially the same in each of the seventeen factories in Marseilles, though, as to details, there are, of course, variations of the general plan. These consist chiefly in the working of patents for different parts of the machinery, but they can be considered as in no sense modifying the system. An American, familiar with the great cotton-seed oil factories of the United States, entering one of these establishments would be amazed at the old-fashioned appearance of the machinery, which, without knowledge to the contrary, he would readily conclude had done service for half a century or longer. * * * An American, therefore, who desires to begin the production of peanut oil should not visit Marseilles, or France, but Houston, Texas, or elsewhere in the United States where cotton-seed oil is manufactured; and the same system, the same machinery, identically the same processes that he finds employed in those establishments will best suit his purpose for the new enterprise. He would find this difference here—that the oleaginous seeds employed at Marseilles are much more costly than cotton seed to the American producer, and the Marseilles manufacturer must exercise proportionally greater care in extracting the entire quantity of oil to be obtained from the cake, and in making the latter yield as large a return as possible for the purposes hereinafter mentioned.

By the courtesy of the proprietor of one of the largest and most successful establishments at Marseilles, who conducts at the same time an immense institution for making soap from peanut and other vegetable oils, it has been possible to examine into, not only the production of the oil, but its conversion into the chief product to which it has been so far applied.

On arriving at the factory, the peanuts are first placed in a machine of the nature of a "winnower," of a different construction, but having the properties of an ordinary American wheat fan, in which, by means of a current of air, all outside dirt and other foreign substances are removed. Having been thus superficially cleansed, if unshelled, the nuts are ejected by the machine into a trough in which works an archimedean screw. This

conveys the nuts to the shelling machine, which consists of two rollers with lobed, cutting edges. The nuts, passing between these rollers, are deprived of the outer husks, which a powerful fan, forming part of the apparatus, blows into a receptacle a short distance from the machine proper. The nuts fall into a trough similar to that which conveyed them to this machine, in which another archimedean propeller removes them to a pair of cast-iron cylinders, or rollers, where they receive their first trituration. By reason of the fact that nails, pieces of iron, stones, and other foreign bodies are often found with the nuts, and pass with them between the rollers, these are so constructed that they easily separate when any such hard substance presents itself, and the uncrushed nuts, passing at the same time, find their way back and pass again through the first pair of cylinders.

Leaving this machine, the partially triturated nuts enter another of similar construction, and undergo practically the same treatment as in the first. If not yet properly crushed, they are returned by another screw to the first pair of cylinders, but if sufficiently ground, they are conveyed by a trough to a sifting machine, which, though, of course, of different material, is constructed on a principle somewhat similar to that of the flint-sorting machines in use on turnpike roads. It consists of a long, hexagonal case, the sides of which are formed of a silk sieve, through which the nuts that have been sufficiently triturated fall into a trough that conducts them to the millstones, while the particles still too coarse to pass through the sieve fall out at the end into a groove conducting them back to the crushing cylinders.

The millstones are of the usual upright oil-mill type. After being crushed under these, the meal is slightly heated in an inclosed iron case prepared for the purpose. It is then wrapped by hand in "scourtins" made of some woven material or horse hair. When probably twelve or fifteen of these "scourtins," with an iron plate between each pair, have been slightly pressed in a preparatory machine to render them more compact, they are placed under a high-pressure press of about 2,850 pounds to the square inch, and left for an hour. At the end of that time all of the oil that can be obtained in the first yield has been extracted. The meal is then removed from the "scourtins," ground a second time, heated to a temperature of about 70° C. (158° F.) and a second pressing is effected.

It should be stated that if oil of a very fine quality is desired, the nuts are crushed only once in the cylinders, for while the finer the meal the greater the yield, the partially ground nuts produce a much more desirable quality.

The yield of oil in the two pressings varies according to the quality of the peanuts. The Mozambique nuts produce in oil about 50 per cent of their weight (shelled) in the first pressing. This oil commands a price of from 70 to 95 francs per 100 kilograms ($13.51 to $18.34 per 220.46 pounds). The second pressing yields from 12 to 13 per cent of original weight, and brings in the market from 45 to 50 francs per 100 kilograms ($8.69 to $9.65 per 220.46 pounds).

USES OF PEANUT OIL.

The oil from peanuts, like that from other oleaginous vegetable substances extracted at Marseilles, is largely devoted to the manufacture of white soap. For this purpose it is highly prized, and great quantities are annually consumed by the factories of this city. Much of it, too, is used for eating purposes, both as salad oil and in the composition of margarine. When made from a superior class of nuts, not too finely ground, this oil is said to be of fairly good flavor, and, in case of dearth of olives, might serve as an excellent substitute for the more popular, though possibly not more widely consumed, extraction. Indeed, the people of all others best able to give an expert opinion as to the merits of peanut oil for table purposes, and who annually consume considerable quantities under the name of, and, perhaps, too, faintly diluted with olive oil, reside in the United States.

The third use of the oil is for purposes of illumination, and, while not extensively consumed in this way, it is certainly equal to other vegetable oils.

PEANUT REFUSE.

The crushed meal which remains after the second pressing is rich in fertilizing principles, particularly in azote. It is also an excellent food for stock, and is sold by the manufacturers entirely for these purposes. If made from shelled peanuts, it commands a price of 13 francs ($2.51) per 100 kilograms; if of nuts in the husk—that is, when the shells remain in the residuum—from 9 to 10 francs ($1.74 to $1.93) for the same quantity.

The shells of peanuts are looked upon by the manufacturers as of no value. They are sometimes thrown into the stable as a bedding for horses, and are frequently mixed with other oleaginous seeds, after the latter have been triturated, to facilitate the flow of oil from the mass, but beyond this they are adapted to no practical use.

The above is an outline of the system ordinarily employed at Marseilles. The "Estrayer system," owned by M. François Régis, was so minutely described by Mr. Trail* that nothing of interest or value can be added.

CLAUDE M. THOMAS,
Consul.

MARSEILLES, *April 24, 1894.*

INDIA.

In India, the groundnut (peanut) is a diffuse, herbaceous, annual plant, with procumbent branches, the stock seldom attaining a height of one foot, and rarely flowers. It is much cultivated by the natives for its oily seeds. After the flowers wither, the torus (which supports the ovary), becoming elongated in the form of a thick, rigid stalk and curving downwards, by alternately bending upon itself from one side to another, forces the pod under ground, and in this position the nuts are ripened.

* "Manufacture of Vegetable Oils in Marseilles," CONSULAR REPORTS, No. 142 (July, 1892), p. 475.

In India, this curious plant often attracts to itself large numbers of red ants, which, in gardens in Bengal, seem regularly to soften and pulverize the soil, as if to facilitate the movement of the pod. It would be interesting to know whether this fact has been observed in other parts of the world, and, if so, whether the plant feeds these useful insects in return for their assistance. The ants do not appear to eat the nuts.

A field of groundnuts has much the same appearance as a field of clover. A good crop forms a wealth of matted, trailing stems, which completely shade and smother all weeds.

Generally speaking, the wholesale cultivation of groundnuts in India is undertaken by well-to-do cultivators, and is an indication of prosperity and easy circumstances. It is often "rotated" with sugar cane and chilies, and occasionally with potatoes and onions.

In the garden land of the Surat district, where "chiclo" (a sedge) is a troublesome weed, the growth of the groundnut helps to suppress it, and the thorough digging which the soil gets in removing the nuts is also beneficial.

It grows best on light land, and delights in a sandy loam, unlike some of the commonly grown pulses. A heavy crop can not be got without liberal manuring and careful tillage. Sheep or goat manure, applied by folding the flock on the field or otherwise, is considered specially suitable, but, failing this, ordinary farmyard manure is applied in considerable quantities. Deep plowing and thorough pulverization of the soil before sowing help the crop materially.

In the greater part of western India, the seeds are sown in the previously prepared soil in June, immediately after the first rain. (Rain falls in India from about the 7th of June to the end of September.) The crop occupies the soil six to seven months. In the absence of rain, the ground must be kept moist artificially, and during the last two or three months, the beginning of the dry season, it is usual to give from two to four waterings. The husked seeds are dropped by hand 2 or 3 inches apart in furrows made by an ordinary two-bullock plow, and are covered by the soil thrown up in making the next furrow; these are about 9 inches apart. Three women sowing can keep pace with one plow. Forty-eight pounds of husked nuts will sow an acre. The crop is usually weeded twice, and as soon as it shades the ground, no further attention, except watering, is required.

The crop is harvested like potatoes, sometimes with a plow, but more often the field is dug over with picks. In order to expedite the digging, the haulms, or vines, are previously reaped, making a much-esteemed fodder. The cultivator usually collects a small army of workmen and does his harvesting in a few days. In the Bombay presidency, a good crop usually yields about 4,800 pounds of unhusked nuts per acre. The average crop is about 3,500 pounds per acre. These figures apply only to good land. The ratio in weight, after two or three days' drying, of unhusked nuts to those husked is as 4 to 3. They are usually sold unhusked, and are worth about $1.25 to $1.75 per cwt. The nuts are often dug for home consumption before the crop is dead ripe, and are eaten either raw or parched.

PEANUT OIL.

The seeds of this plant yield a clear, straw-colored, nondrying oil, which resembles olive oil in taste, and in India it is largely used as a substitute for olive oil in medicinal preparations, etc. It is also used as a lamp oil, having the advantage over other oils that it lasts longer before becoming rancid. The yield of oil in Bombay is often as much as 50 per cent of the weight of milled seeds; in Pondicherry, 38 per cent; and in Madras, 43 per cent. The quality of the oil from cold expression is much finer than when heat is employed, but in the latter case, the volume is much increased.

Formerly, this oil was more extensively expressed in India than at the present time. The increased exportation of nuts has no doubt made the change, the European dealer wanting clear, pure, and fine oil, which his improved machinery enables him to produce, while the native can not be depended upon to make good oil, as he invariably adulterates it. In recent years, the shorter distance by way of the Suez Canal has rendered the oil the least important part of the freighting trade in this product.

Shelled nuts are exported to Europe, pods to Burmah and the Straits Settlements, oil to Mauritius, Burmah, Straits Settlements, Europe, etc., and oil cake to London, Ceylon, Straits Settlements, etc.

From 1890 to 1892, a steam oil mill was at work in Pondicherry, but was abandoned, as the cost of production was higher than by the native oil mill. Oil obtained by the first pressing was good, but the second pressing was dark and discolored, and was rejected in the European market; then, too, the oil cake obtained from the steam mill was dry and powdery and not fit for use. A project is on foot to start another mill, which is to have a capacity of 1,000 candies (1 candy=529 pounds) of seed per day.

ADULTERATIONS.

Groundnut oil is used extensively to adulterate "ghi" or "ghee" (clarified butter.) Pure gingelly (sesame) oil in some parts of the Madras presidency is practically unknown, being adulterated with groundnut oil in the proportion of about 3 to 1. Sometimes, when gingelly seed has been crushed in an oil mill and the oil removed, a quantity of groundnut oil is added, and the mill is worked again, the second working being passed off for gingelly oil.

FOOD.

Groundnuts are used for food by the natives in many different ways. In southern India, the nuts are boiled and seasoned with mustard oil, salt, and chilies. Sweetmeats made by adding ripe groundnuts to sweet palm juice, and boiled to a thick consistency, are extensively consumed by the poorer classes. The roasted seeds are used as a substitute for coffee in some parts of India. The oil is used in all kinds of cookery, and things fried in the oil have a pleasant flavor. The meal may be used for food, as has been proved by Dr. Muter, who thoroughly analyzed it.

The following are the ingredients contained in the groundnuts, according to Dr. Muter's analysis:

	Per cent.
Moisture	9.6
Fatty matter	11.8
Nitrogenous compounds	31.9
Sugar, starch, etc.	37.8
Fiber	4.3
Ash	4.6
Total	100

Dr. Muter says:

From this analysis, the residue from the groundnuts, after the expression of the oil, far exceeds that of pease, and is even richer than lentils in flesh-forming constituents, while it contains more fat and more phosphoric acid than either of them.

The cake is also considered a very fine food for cattle; also, the leaves and branches, which are greedily devoured, increasing the quantity of milk by from 10 to 15 per cent.

MANURE.

When spoiled, the haulms are used as manure for wet land, or for fuel. The cake makes very good manure for rice, sugar cane, and plantains, but it is said that produce raised with it is comparatively insipid, and that rice so produced soon ferments.

TRADE.

The introduction of the groundnut into European trade dates from 1840, since which time the exports have increased enormously. In southern India, the exportation of groundnuts is one of the most important branches of trade. Nine-tenths of this valuable trade is still monopolized by the natives.

The following table shows the trade in groundnuts for the official years 1878–'79 to 1891–'92, inclusive. The value in the official table was given in rupees, which I have computed into dollars at the representative exchange value for each year.

Exports of groundnuts from British India.

Years.	Weight.	Value.
	*Cwts.**	
1878–'79	25,472	$40,526.00
1879–'80	48,435	85,655.70
1880–'81	188,381	302,345.40
1881–'82	373,317	520,580.70
1882–'83	265,743	394,175.40
1883–'84	712,954	1,129,638.60
1884–'85	676,460	1,084,218.90
1885–'86	655,670	985,834.50
1886–'87	945,895	1,264,724.40
1887–'88	1,261,637	2,019,093.78
1888–'89	887,997	1,578,988.89
1889–'90	1,394,191	3,011,300.13
1890–'91	1,525,238	3,333,849.30
1891–'92	1,529,940	2,364,797.16

* 1 cwt.=112 pounds.

Quantity and value of groundnuts exported from each district in the official year 1891–'92.

Province from which exported.	Weight.	Value.
	Cwts.	
Bengal	84	$73.48
Bombay	1,041,987	1,509,274.64
Sind	138	194.04
Madras	487,668	636,191.50
Burmah	63	58.80

Countries to which groundnuts were exported in the year 1891–'92.

Countries.	Weight.	Value.
	Cwts.	
United Kingdom	45,069	$53,446.02
Belgium	98,271	144,134.48
France	1,185,358	1,984,241.72
Germany	8,074	12,236.77
Italy	74,845	101,894.27
Egypt	93,097	18,975.98
Other	5,547	6,653.71

Area under cultivation in the Bombay presidency in the year 1892–'93.

District	Area.	District.	Area.
	Acres.		*Acres.*
Surat	295	Satara	52,433
Khandesh	4,696	Belgaum	12,417
Nasik	15,512	Bijapore	79
Nagar	3,991	Total	142,459
Poona	16,248		
Sholapur	36,788		

H. J. SOMMER, JR.
Consul.

BOMBAY, *April 21, 1894.*

MOZAMBIQUE.

The raising of peanuts is an important industry in this province. The natives are the sole growers of the nuts, and every native has his little patch of them. In November, just before the rains, the seed nuts are planted in the most primitive manner. The soil is pulverized to the depth of a few inches with the clumsy native hoe, and the nuts are planted without any system. No fertilizers of any description are used, but the ashes left after burning off the weeds and brush before planting must enrich the ground to a considerable extent. Shortly after the first rains, the young plants appear and are left to grow with very little attention. The plants are very hardy and will grow almost anywhere, and without any care or cultivation, though a sandy, loamy soil seems to suit them best.

By April or May, the nuts are ripe and are grubbed up, shelled, dried, and taken to the nearest Indian or Arab shopkeeper or trader and bartered for cotton goods, beads, and other articles generally sold to the natives. From the shopkeepers, the nuts go to the warehouses of the European merchants located on this coast, where they are first weighed and then dumped out on large cement floors, fully exposed to the sun, where they are thoroughly dried and sorted, all the black and rotten nuts being picked out. After being sifted, to get rid of the dust and dirt, they are carefully packed in new bags holding about 150 pounds each, weighed again, and stored in the dryest of warehouses until a steamer or sailing vessel is at hand for their transportation to Europe.

From the time they leave the hands of the natives until they reach their final destination, the greatest care is taken to keep them dry, as they absorb moisture readily, and a short exposure to damp may alter their weight 5 or 10 per cent, and cause them to turn rank. If they are not taken in hand immediately and thoroughly dried, they become soft, stick together in lumps, and, finally, rot and become a mass of foul-smelling pulp. During the first of the season a little dampness will cause the nuts to become worm-eaten and entirely reduced to dust and a little husk.

It should be noted that these nuts, while in the ground, require little or no attention, but after they are harvested, they must be looked after most carefully. These nuts, by some called "groundnuts," and by the foreign merchants "arachides" (by the Portuguese designated "amendoim"), are practically the same as the well-known peanut of our own country, except that they are larger, fuller, and more oily. In flavor, they greatly resemble the American nut, being fully as sweet and palatable. There are no different varieties of this nut in this province.

The natives make little use of them other than as articles of barter, the nuts being their chief currency in their dealings with the East Indians and Arabs at the little trading stations scattered along the coast. A few natives extract oil from the nuts in the most primitive manner, but the quantity thus obtained is insignificant. The nuts are sometimes eaten by the natives either raw, roasted, or made into a sort of curry, but the quantity thus consumed is small. Monkeys and dogs are very fond of the nuts, and eat them with avidity whenever they can get them, but while the monkey seems to extract considerable nourishment therefrom, the dog, on the other hand, is made very sick from eating them.

The nuts are not utilized in any manner by the Europeans here save as hereinbefore mentioned.

Owing to the irregular manner in which the nuts are grown—here and there in patches of all sizes and shapes—the yield per acre can not be ascertained or even estimated. During the past year, the exportation of peanuts from Mozambique amounted to 8,600 tons, of which quantity 5,000 tons came from Parapat, a little coast town 100 miles south of Mozambique. During 1892, 4,000 tons of nuts were exported from Quilimane, and the ex-

port for 1893 is estimated to have been greater than that of the previous year. The estimated exportation from Inhambane during the past year was about 2,000 tons.

During the past year, the prices of peanuts have been very variable. When the season first opened, high prices were paid, but they soon dropped and have continued to go down. Last month, they were sold here at $50 per ton of 2,204 pounds; a few months ago, they sold as high as $63 per ton. The prices here are governed by the Marseilles quotations, which are generally from 33 to 40 per cent in advance of those of the Mozambique market. To-day, I am informed, the price in Marseilles is less than $50 per ton, and in Mozambique, no one will buy. Many of the Indian and Arab shopkeepers have still considerable quantities of nuts on hand, and, unless the market improves, they will have to sell them at very low prices, indeed, or carry them over for a few months until the next season opens.

Marseilles is the principal port to which peanuts are shipped from Mozambique, and that city takes fully 65 per cent of the total crop of the province. About 25 per cent goes to Rotterdam, and the balance to Hamburg and other ports.

The Mozambique government charges an export duty of 2 per cent ad valorem on peanuts, and, in computing this duty, it values the nuts at the uniform rate of $30 per ton.

W. STANLEY HOLLIS,

MOZAMBIQUE, *March 1, 1894.* *Consul.*

SENEGAL.

Peanuts are cultivated by the natives in a rude but effective manner, which is said to be suited to the nature of the soil (a dark loam liberally mixed with sand) and to the crop desired. The ground is first burnt over and then scratched with an iron instrument fitted to a handle. Stable manure, when obtainable, is used to some extent. The nuts are planted at the commencement of the rains in July, and the vines are pulled soon after the rains are over.

There were exported from the bay of Gorée last year, principally to France and Belgium, more than 56,000 tons of peanuts, besides a vast quantity from St. Louis, Carabane, the Rio Nunez, and other places in this consular district.

This commerce is principally carried on by steamers engaged in the trade, but sailing vessels are used to some extent.

The nuts are bought with 5-franc silver pieces of any country belonging to the Latin union.

The first expression of peanut oil is about equal to olive oil; the other grades are used for cooking and soap-making.

P. STRICKLAND,

GORÉE-DAKAR, *March 10, 1894.* *Consul.*

NATIONAL WEALTH OF GERMANY.

In 1886, Prof. Becker, then chief of the German bureau of statistics, estimated the total wealth of the German people at 175,000,000,000 marks ($41,650,000,000), and Mr. Miquel, the Prussian Minister of Finance, in recent reform projects, has reckoned the wealth of the people of Prussia at 73,800,000,000 marks ($17,564,400,000), of which 29,730,000,000 marks ($7,075,740,000) is conjectured to be in stocks, bonds, and loans. It is calculated that about 25 per cent of the wealth of Germany is invested in stocks and bonds, and that this will probably rise to 40 or 50 per cent in the next generation.

Prof. Schmoller, a leading authority on economics in the Empire, estimates that of the 49,500,000 people who make up the German Empire, 2,500,000 to 4,000,000 are in receipt of incomes from invested capital, and of these, about one-half hold public securities.

Prof. Becker estimated the annual increase of wealth in the country at 3 per cent, or about 5,000,000,000 marks ($1,190,000,000), a part of which must arise from enhancement in values, so that 2,500,000,000 marks ($595,000,000) is taken as the actual annual savings of the people. In Prussia, in the last ten years, the deposits in the savings banks are claimed to have augmented about 185,000,000 marks ($44,030,000) per annum, and throughout Germany probably 300,000,000 to 400,000,000 marks ($71,400,000 to $95,200,000), from which it is inferred that the German nation is laying up from 2,000,000,000 to 2,500,000,000 marks ($476,000,000 to $595,000,000) annually, one-half of which goes into securities.

According to Prof. Schmoller, the amount of foreign securities held by the Germans in 1883 was two-thirds of what they had of home paper, and from 1884 to 1887, it was equal to the latter. Then, during a period of rise in values, it sank to much less, and afterwards shrank to one-fourth or one-fifth of the home securities. In the last ten years, there have been, in the aggregate, from 4,000,000,000 to 5,000,000,000 marks (about $952,000,000 to $1,190,000,000) worth of foreign and 8,000,000,000 marks ($1,904,000,000) worth of domestic securities put upon the German market.

With reference to the question whether Germany is wise in taking so much foreign paper, Prof. Schmoller remarks that it is a healthy symptom, and indicates a thriving state of the people, and that, although much money has been lost thereby it has been, on the whole, a valuable experience and the means of placing the German stock exchanges on an equal footing with those of London, Paris, and New York, a position which they did not occupy twenty-five years ago. This has been of advantage to the whole nation, and to every workingman in it for the reason that, with the emigration of capital, there has been simultaneously a quickening of the industrial exports of the country and an employment of German industry and enterprise abroad.

The losses of the country from investments in foreign securities have been great, but they are argued to have been amply offset by the profits realized. From 1860 to 1892, the Germans are reckoned to have made 1,000,000,000 marks ($238,000,000) in American and Russian securities alone, independent of all indirect benefits which may have accrued to the general business of the country through the connections made in the handling of such stocks and bonds. Germany now holds probably 10,000,000,000 marks ($2,380,000,000) worth of foreign securities, which is presumably double what it possessed ten years ago. The interest and dividends on these add about 500,000,000 marks ($119,000,000) of wealth annually to the country. This has a marked effect on the well-being of the country and its trade balance.

What the country has lost in recent years through unfortunate investments in foreign securities has probably been about $200,000,000, which, as remarked above, has been fully compensated for by gains made.

Commercially and industrially, Germany is in a favorable situation to-day, notwithstanding the complaints that one hears from time to time, and those persons err greatly who imagine that the country is soon going to be financially engulfed by its military burdens.

JAMES H. SMITH,
Commercial Agent.

MAYENCE, *April 18, 1894.*

WORKMEN'S INSURANCE IN GERMANY.*

All kinds of legislation looking to improving the condition of the workingman fill the statute books of the states and the German Empire. There are obligatory pension and insurance funds established to keep him from poverty and the poorhouse. The statistics of the imperial insurance office show that insurance legislation, if not all that it ought to be, or that its friends would wish, is nevertheless a great source of satisfaction to legislators whose highest aim is to give labor no good reason to complain of the Government. During the past year, 278,777 persons were insured in the accident branch and 239,650 in the invalid and old-age branch, *i. e.*, were participators in the benefits. Thus, within ten years after their establishment, these funds are furnishing means of decent existence to over 500,000 persons—1 per cent of the population—when incapacitated from work either by injury or old age. Of course, were these funds not in existence, many of those enumerated would get support from the communal poor funds, but it would not be given and received as a right, but as a charity, and while many could not be helped, each amount would have been the merest pittance. The great advantage of the state insurance is that it is given and received as a right—no shame being attached to its acceptance. The communes have gained, the burden once borne by them being now borne by the manufacturers.

*See reports of Commissioner of Labor for special report on "Compulsory Insurance in Germany."

This is best seen in the accident insurance statistics. Here, the manufacturers paid all. In 1885—the first year in which trades unions participated in accident insurance—2,000,000 marks was the sum paid out, against 38,000,000 marks in 1893. Besides, the reserve funds, expenses of investigation, arbitration, maintenance of offices, payment of physicians, clerks, etc., must be considered. Since 1885, the circle of accident insurance has grown larger and larger. The sum paid out as compensation was 2,000,000 marks; in 1893, under almost similar conditions and circumstances, it was nearly double this amount. Manufacturers, alarmed at its increase, have begun to cry out. They claim that they can not go on competing with other countries that have no such insurance.

Legislation looking toward an improvement of the laborer's condition is, however, as permanent as any on the statute books. These funds are far from satisfactory, but they have come to stay until something better takes their place.

J. C. MONAGHAN,
Consul.

CHEMNITZ, *March 14, 1894.*

THE HANYAN ROLLING MILLS.

One of the marvels of this marvelous country is the vast rolling mills and arsenals now approaching completion in Hanyan, a city opposite Hankow, on the Han side, erected under the auspices of Chang-Taz-Tung, viceroy of Hupeh and Hunan. The plant covers about 70 acres, with a railroad 1½ miles in length from the Yangtze River to the works, and thence to the Han River, with an incline from the top of the Yangtze bank to the water, where powerful machinery is located to draw the cars up a steep incline of about 300 feet to the level. The works were designed by an English engineer on a most gigantic scale, and in their fitting up nothing but the most modern and improved machinery has been imported, mainly from England. The buildings are, unfortunately, located in a valley liable to overflow, and their foundations have been raised 15 feet, consisting of a bed of concrete made of brick, stone, and Portland cement, covered with a layer of earth, the whole of which was carried in baskets by coolies—the labor of thousands of men. The work was commenced in 1891, and is yet far from completion, as much of the machinery is still in boxes.

The buildings are of brick, with stone foundations, handsomely designed and most elaborately and solidly constructed. The brick used in the construction of the works is made on the ground by machinery, the clay being moistened and ground, then passed through a press, forming a continuous slab which is automatically cut in pieces a yard in length. The piece is forced against a frame interlaced with wires that severs it into ten perfect, hard-pressed bricks, which are then conveyed by hand to the furnaces and

burned. All the fire brick for lining the furnaces, casing, etc., were also made in these yards.

There are four immense hot-air blast furnaces, two large steam hammers, and innumerable rollers, with all of their appendages, for manufacturing railroad iron, which is the main object of the erection of the plant. Large quantities of Chinese iron are now in the yard, with some English iron for blending purposes, and coke is being imported from Wales to be used temporarily in the construction of rails, as soon as the machinery can be put in operation, as a test of what the foundry can do. The sheds, covered with corrugated roofing, cover an area of 20 acres. The smelters are of the most improved patterns, and a large furnace is nearly completed for the manufacture of Bessemer steel. The molding and pattern shops are as complete as they can be, and large elevators are placed in various buildings for hoisting material. In fact, if ever finished, it will be one of the most complete rolling mills in the world, as expense seems to have been a secondary consideration in the erection of this immense establishment. It is estimated by experts in such matters to have cost so far not less than $3,500,000, and it will cost at least $1,000,000 more to complete it.

Once in operation, it is the intention of the viceroy to manufacture everything in the iron line—ordnance, rails, machinery, small arms, etc. The arsenals are about complete, and machinery will soon be set up for the manufacture of arms and munitions. A number of skilled workmen are now en route here for the purpose of instructing the native artisans and of arranging everything in working order.

The two buildings, covering an area of about 4 acres, are substantially constructed and display great skill on the part of the architect and builder. They are fitted up with large engines and the most improved machinery, and everything that the ingenuity of the machinist can conceive to be necessary in such an establishment has been purchased in order to make it a success. The average Chinaman looks on these modern wonders with stolid countenance, and turns away with the idea that the viceroy must be hypnotized by the foreigner to put so much cash into an undertaking from which he can see no outcome, and this view is taken by some of the foreigners that have visited the works. So far, nothing but the best material has been used; nothing of a shoddy character has been allowed in its construction. The railroad is laid with heavy steel rails. The two traction locomotives are of the latest designs, and the iron cars are similar to those used in England for the transportation of coal and iron, and will be used for carrying coal, iron, and other material from the river to the works.

The mines, from which the metal for the manufacture of rails is to be obtained, are near Wang-Shih-King, about 76 miles below Hankow, 16 miles inland at Tayeh, connecting with the river by a well-constructed railroad and dock at a landing 3 miles below Wang-Shih-King. The ore is reported to be of good quality and inexhaustible. Coal, both hard and soft, is mined in this neighborhood in the crudest manner, no effort being made to drain

the mines of water, and, once flooded, they are abandoned and new ones opened. This coal has been pronounced by experts as not suitable for smelting, containing too much sulphur, but it is thought that a good quality can be obtained hereabouts from mines now undeveloped. Mines of iron and coal are numerous in this section and can be made to furnish all the material needed, if mined systematically, and, owing to the cheap labor obtainable, they can be worked economically.

Should the means of the viceroy hold out and the plant be successfully operated, it will prove a revelation to the natives of this portion of China, and do much to disabuse their minds of their own infallibility, and convince them of the benefits to be derived from the genius and skill of the foreigner. It will stamp Chang-Taz-Tung as a public benefactor and one of the most progressive mandarins of the Imperial Empire.

The rails to be manufactured here will be used to construct a road to start some distance above Hankow, so as to get beyond the marshy ground of the lake country and the annual overflow, to connect with roads projected for the interior. It is asserted that work will commence on the contemplated road as soon as it is definitely settled that the Hanyan mills can supply the rails.

Taken all in all, it is the most progressive movement so far made in China for the purpose of manufacturing arms, steel rails, and machinery, as the plant is a perfect one and of a magnitude sufficient to require several hours to inspect it even hastily.

JACOB T. CHILD,
Consul.

HANKOW, *March 19, 1894.*

EMIGRATION FROM AMSTERDAM TO THE UNITED STATES.

The total number of persons who emigrated to the United States via the port of Amsterdam during the year 1893 was as follows: Through Amsterdam, 3,378; via England, 140. The emigrants were composed of 2,335 men, 766 women, 317 children, and 100 infants.

Nationality of emigrants.

Nationality.	Number.	Nationality.	Number.
Netherlanders	222	Hungarians	135
Germans	226	Roumanians	17
English	101	Belgians	7
Austrians	1,382	South Americans	28
Russians	1,317	Dane	1
North Americans	17	Total	3,518
Italians	64		
Swiss	1		

Emigration by months.

Months.	Men.	Women.	Children (1 to 10 years).	Infants.	Total.
March	324	92	37	10	463
April	526	125	56	15	722
May	1,074	365	130	48	1,617
June	60	31	22	9	122
July	82	23	6	.....	111
August	77	.....	.....	.....	77
September	56	48	35	4	143
October	22	24	10	4	60
November	46	30	10	4	90
December	68	28	11	6	113
Total	2,335	766	317	100	3,518

Occupations of emigrants.

Occupations.	Number.	Occupations.	Number.
Agents	2	Merchants	36
Bakers	5	Miner	1
Barbers	2	Musicians	2
Blacksmiths	11	Nurse	1
Bookbinders	2	Painter	1
Bookseller	1	Policeman	1
Butcher	1	Saddlers	2
Cabinetmakers	5	Sculptor	1
Cap-makers	2	Seamstresses	2
Carpenters	9	Servants	3
Clerk	1	Shoemakers	3
Coachman	1	Stonecutter	1
Farmers	134	Students	2
Fisherman	1	Tailors	19
Gardener	1	Tinsmiths	2
Goldsmith	1	Turners	2
Laborers	1,859	Watchmakers	3
Locksmiths	2	Weavers	2
Machinist	1	Total	2,130
Mason	1		
Mechanics	4		

Emigrants with and without trade or occupation.

With trade or occupation	2,130
Without trade or occupation:	
Men	203
Women	768
Children and infants	417
Total	3,518

Occupations of the Dutch emigrants.

Occupations.	Number.	Occupations.	Number.
Agent	1	Painter	1
Baker	1	Policeman	1
Blacksmiths	3	Saddler	1
Bookseller	1	Seamstresses	8
Cabinetmakers	5	Servants	3
Carpenters	5	Tailor	1
Clerk	1	Turner	1
Coachman	1	Total	118
Farmers	18		
Fisherman	1	Without occupation:	
Gardener	1	Men	9
Goldsmith	1	Women	46
Laborers	62	Children and infants	49
Mason	1	Total	104
Merchants	3		
Miner	1	Grand total	222
Musician	1		
Nurse	1		

EDWARD DOWNES,
*Consul.**

AMSTERDAM, *April 20, 1894.*

THE BASKET-WARE INDUSTRY OF UPPER FRANCONIA.

Nestled among the mountains of Upper Franconia, Bavaria, near the boundary line of Thuringia, is the small town of Lichtenfels. Very few of the travelers who, in journeying from Munich toward Leipsic, pass this apparently insignificant place of 3,000 inhabitants, are aware of the fact that here is located the largest basket-ware market on earth, sending its products to all known points of the civilized world. The United States alone, in spite of the dull state of trade, imported in 1893 from Lichtenfels and the neighboring villages basket-ware to the amount of $230,000. The exportation of this article to England was still larger, and there is hardly a firm to be found handling this line of goods in the inland towns of the German Empire that does not order from Lichtenfels.

On the occasion of a recent tour throughout this consular district, I took advantage of the opportunity to secure a closer insight into the conditions bearing upon the industry, and in order that the information I succeeded in obtaining may be utilized by parties manufacturing the same article in the United States, I submit this report.

The origin of this industry in Lichtenfels dates from the close of the last century, at which period a citizen (Krauss) of the place undertook the business of weaving baskets on a small scale, commensurate with the modest

*Under date of May 18, Consul Downes, of Amsterdam, reports that he is informed that, owing to the prevailing dullness in the diamond trade in that city, many diamond cutters and polishers are preparing to emigrate to the United States.

means at his disposal. The circumstance that induced him to begin the undertaking was the existence of a splendid growth of willow trees in the neighboring valley of the Main, thus furnishing him with the material for producing the article. At first, the industrious basket-weaver could find a sale for only the more primitive varieties of his merchandise, but the small farmers of the neighborhood, who busied themselves with basket-weaving whenever the tillage of their land offered no further opportunity for labor, soon brought the art of producing baskets to such perfection that the above-mentioned founder of the new occupation ventured to send his wares to the larger fairs and markets of the country, and even to seek additional purchasers in foreign lands. In spite of the fact that equally good material for manufacturing baskets was to be found in France, the latter country continued to order the German article almost exclusively until the outbreak of the Franco-Prussian war in 1870. Even at the present day, Lichtenfels, Michelau, Hirschaid, and Burgkundstadt ship basket ware to the French market.

The gradually increasing demands upon the young industry necessitated the securing of foreign raw material. The finer varieties of willow reeds had to be imported from Hungary and France, and even from countries beyond the sea, straw for the finer woven articles being ordered from Spain and Italy, and the palm leaves used for ornamenting the better class of wares from the tropics. In this manner, the evolution of the so-called "house industry" in Lichtenfels proceeded, resulting in the employment to-day of about 16,000 men, women, and children, who produce every imaginable variety of articles from the simplest to the most elegant.

The answer to the question as to what the rapid development of this industry in the otherwise quiet portion of Bavaria and its successful maintenance against competitors is to be attributed to, consists in the following particulars: The circumstance that those inhabitants of the region mentioned who engaged in the occupation of manufacturing baskets only did so in the intervals of rest from labor on their small farms, thus rendering the cost of production of the wares as an extra source of income inconsiderable. These people were glad of the opportunity to earn a few marks extra a week, and even to this day, there are few basket-weavers in the district whose weekly income from this source exceeds $4. On the contrary, in the course of my tour, I came across families consisting of father, mother, and several children, all busily engaged in weaving baskets and other articles, and of these families, I was assured by the head of one that the total earnings of all of them did not amount to $5 per week. And for this sum these people manufacture articles of really artistic value. My attention was directed to beautiful newspaper albums made of willow reeds and colored straw, flower stands of most artistic designs, very handsome sewing baskets with celluloid ornamentation, etc. And all this the result of the combined labor of five persons for the weekly compensation of $5. One is unable to decide what is most to be wondered at—the artistic ability or the modest demands of these people.

Factories, in the sense used in the United States, are very few in number. The basket-ware manufacturer delivers the raw material to the people who are to manufacture articles therewith at their own home, *i. e.*, he weighs out for them the willow reeds, colored straw, palm leaves, etc., and gives them the designs, according to which the various articles are to be made, and at a stated time, generally on Saturday or Monday, the workers (who, for the most part, live in neighboring villages) bring the products of their industry and skill to the manufacturer, receiving the small sums before mentioned in return.

I noticed, on one of these delivery days, among other articles, a very elegant baby basket, such as is found in the nurseries of our wealthy people. The man who had made and delivered it received 58 cents in payment.

Apart from the low rate of wages, however, this industry receives encouragement through the schools of design that have been established and are supported by the state in which the young people of the neighborhood are educated in all branches of the industry. A child that has attended such a school is able, at the age of 11 or 12 years, to engage independently in basket-weaving, or at least, to aid the adults very materially in their labors. Similar conditions govern the basket-ware industry in other European countries—Austria and France, for instance. The only competition that has been successful in this branch of industry is that proceeding from the employment of convict labor. One manufacturer showed me some basket frames for toy carriages said to have been manufactured in Austrian penitentiaries at a cost much smaller even than the rates obtaining in the case of the "house industry" above described. Whether these articles of convict-labor manufacture are sent from Austria to the American market, I could not ascertain; it is asserted, however, that they are sent thither.

As a result of the foregoing facts, it will be readily understood that the representatives of this industry who, it is true, maintain that their own profits are small, are not disturbed by the customs duties levied on their article by foreign powers. Referring to the fact that, in spite of the duty of 40 per cent levied by the United States upon imported basket ware, the exportation of that article to our country has hardly decreased to any extent. One of the Lichtenfels manufacturers remarked to me that the industry he represents would not profit by a reduction of the duty. Only the consumers would be benefited, as they would obtain the articles at a comparatively small cost. It is worthy of note, however, that, as I heard from another source, the cultivation of the willow in the United States threatens to bring about a dangerous competition with the German article.

LOUIS STERN,
Commercial Agent.

BAMBERG, *April 7, 1894.*

CULTIVATING ONIONS IN EGYPT.

The onion crop of the valley of the Nile is of great importance and brings an increasing amount of money each year to Egypt, as onions are shipped in enormous quantities to England, France, and other European countries, and even to the United States, where they find a ready sale at good prices. So excellent is the quality that efforts are being made in other countries to raise onions from Egyptian seed. The experiment might prove successful in certain sections of the United States.

The following description of the process of cultivation employed in Egypt may serve as a guide to American growers, although it applies to a soil possessing no inherent moisture, the climate being almost rainless and dewless. In all departments of Egyptian agriculture, watering is accomplished by means of irrigating from the Nile, either directly or from canals.

The more popular Egyptian onion, known as "Baali," is grown in yellow soil, sparingly watered while the bulbs are maturing, that they may stand a lengthy sea voyage with little risk of "sprouting." The two stages of cultivation are these:

First stage—The first stage covers the season of the sprouts for transplanting. Toward the end of August or the beginning of September, the land intended for the onion crop is irrigated from the Nile. After letting the water run off, it is left to dry until the first plowing, when the plowshare penetrates not deeper than four fingers' breadth. All clods of earth are broken up and pulverized, and the land is divided into plots about ten feet square and stirred lightly with a mattock—the favorite implement of the Egyptian farmer, which is double-headed, one side being broad like an adze and the other like a pickax. The seed is then scattered freely and evenly, at the rate of something under 2 bushels to the acre. After sowing, a "plank" is passed lightly over the soil to cover the seed and bring the plots to the same level. The plots are then irrigated, the islets along the Nile being irrigated four times and the raised lands six times. The first irrigation should occur immediately after sowing, and the water should be completely absorbed. A second and very light watering is given as soon as the plants appear above ground, and the borders of the plots are sprinkled. If the seed is planted in raised land, manure at the rate of about one peck of light manure for each plot is applied, but if sown in low ground, there is no need of manure. A third watering is given ten days after the second, and a fourth ten days after the third, the plots being filled with water in the fourth stage. After the last watering, both islets and raised lands remain undisturbed for ten days. The onions ripen in the first fortnight in October and are unearthed.

Second stage.—The second stage covers the period from the transplanted sprouts to the mature onions. Land intended for "Baali" onions should be islet soil of good quality, with no weeds or grass, or yellow land of the same quality and damp enough to allow the crop to grow and ripen. It is irrigated

in September, and after letting the water run off is left to dry until it can be plowed. It is plowed three times, the plowshare penetrating to a depth of about 8 inches. After the third and last plowing, the onions are set out in furrows at a distance of 4 inches apart. The furrows resemble wheat furrows, and the earth covers the onions in the second furrow. In plowing the last time, the cultivator plants the bulbs in the furrow. The plow returning in the second furrow covers them. The stalks or tops of the seed onions emerge from the soil to a height of four fingers' breadth or more. Every twenty days, the weeds are pulled out in order that the onions may be clear and allowed to develop. In the month of April, the tops die, and the onions are pulled, and, when perfectly dry, are packed in coarse sacks and sent to market. "Baali" onions, in their second stage, are never watered directly.

"Miskaoui" onions absorb so much moisture from the frequently irrigated ground in which they grow that they are seldom sent abroad. They are sown in the same way as the "Baali"—that is, the sprouts are used as seed, and any grade of soil can be made use of. The land is irrigated at the beginning of September, and, after the water has run off, it is left to dry until it can be plowed. It is plowed twice, and divided into plots 10 feet square, each furrow being 2.4 inches deep and 4.8 inches wide. The plants are laid in the furrows at distances of 4 inches, and the water is immediately let in. The second irrigation occurs in twelve days, and the third in twenty-four days; after this the soil is watered every eight days. The number of waterings is, therefore, eleven or twelve. The ground is then left ten days without watering, and the onions ripen and are unearthed. They are known to be mature when the tops become dry.

The cultivator plants the sprouts in the furrows head down, burying them to the depth of four fingers' breadth, and lets in the water, as stated above. The unearthing of the "Miskaoui," as well as the "Baali," is done with the hand, if the soil be yellow, and with a mattock in case of black soil.

FREDERIC C. PENFIELD,
Agent and Consul-General.

CAIRO, *April 2, 1894.*

UNITED STATES TRADE WITH SANTOS.

The two new railroads—the Mogyana and the Sorocabana—which are now under construction, leading from Santos to various parts of the interior of the State of São Paulo, Brazil, will, when completed, increase not only the commercial importance of Santos, but will also add very much to the many favorable opportunities for doing a large commercial business, if American merchants will take advantage of them. There is no doubt of this, when it is considered that the people here have a greater fancy for American goods

than for those from Europe, and, also, when it is considered that these two roads will reach more than half of the population of a State which has over 1,500,000 people.

These lines will extend through sections of the State of São Paulo that bid fair to blossom in the near future with new coffee farms, the production of which will greatly increase the many thousands of bags of coffee brought monthly to Santos by the only railroad that now runs into Santos—the São Paulo—from other sections of the same State.

Many of the prominent importers here have told me that American merchants apparently do not want their trade, and, as a result, those of England, France, and Germany have almost a monopoly of it, even in the face of a high import duty. What is even more remarkable is the fact that most of the goods sent here from Europe are on consignment. The United States, with no import duty to contend with, and their goods being much preferred, has allowed Europe to keep this market even against the wishes of the consumers here.

If our merchants would send men here to work up their interests or ship what goods they can on consignment (as is done by European merchants, who are making untold millions of dollars annually out of the business), American goods would soon take the lead.

HENRY C. SMITH,
Consul.

SANTOS, *April 5, 1894.*

IMPROVED STOCK FOR MEXICO.

The following statement shows the number of thoroughbred and grade domestic animals that were imported into Mexico from the United States and entered at this port during the six months ending March 31, 1894:

Horses	151
Cattle	206
Sheep	685
Swine	14
Total	1,056

The horses consisted of 61 geldings and 90 stallions and mares. Of this number, 109 head were imported during the month of November and entered in the races inaugurated in the city of Mexico by a citizen of St. Louis, Mo. All of these have been returned to the United States except 18 thoroughbreds and 16 trotters. These have remained in Mexico for breeding purposes, and, it is hoped, will be the means of inducing the people of this country to make liberal importations of these two breeds of American horses.

There is a limited demand among ranchmen for the cheaper class of thoroughbreds and grade stallions of both the draft and roadster breeds

and in the large cities for draft and saddle animals. A smooth class of heavy horses bring good prices as "coachers." The general appearance of the animal has more to do in determining his value than unusual speed or variety of gaits.

The cattle were Shorthorn, Hereford, and Holstein thoroughbreds and grades, in the proportion of one thoroughbred to twenty grades. Having had no foreign market for her beef for the last four years, the price of cattle has become so low that there remains but little incentive for Mexico to improve the beef qualities of her cattle. The people have, in consequence, paid more attention to the improvement of the milk qualities, and it appears that the Holstein has been their choice of breeds for this purpose.

The sheep were grades of the various breeds—mostly merinos and Cotswolds—and were imported for breeding purposes in the northern part of Mexico.

As there is very little farming done in this part of the country, the importation of swine has been limited to fourteen of the Berkshire variety.

The apathy of the people of Mexico on the subject of improvement of their live stock will continue to prevent them from going abroad to secure animals for this purpose, and whatever improvement is brought about will have to be done by bringing the improved stock to their doors. Almost everything that has been accomplished in this line has been done by American traders, who have no connection with the breeding interests of either country.

Absolutely no value is placed upon pedigree, and a grade will sell for as much as a pure-bred animal, provided it looks as well.

THEODORE HUSTON,
Consul.

PASO DEL NORTE, *April 24, 1894.*

COFFEE CULTURE IN HONDURAS.

The cultivation of the coffee plant is yet in its infancy in the Republic of Honduras. While there are numerous so-called plantations of coffee, they are small and indifferently cared for, and, consequently, the production is far from being up to the proper standard.

The soil, climate, and conditions in Honduras are equal in every respect to those of Guatemala, Nicaragua, or Costa Rica, where the coffee industry has already reached large proportions. The only drawback in Honduras is lack of means of transportation and facilities for shipment to the coast. At present, there is practically no exportation of coffee from Honduras, the product of the plantations being readily sold at home. I have known the price of coffee, even in time of peace, to reach the sum of 40 cents (gold) per pound, and in time of war, as much as 75 cents, notwithstanding the splendid adaptation of the country to its production.

The Honduranean coffee is equal in every respect to the Mexican, Guatemalan, or Costa Rican product, and is well known to be of a superior quality, commanding a price in the great markets of from 20 to 25 cents per pound.

In the Republic of Honduras land can be had in either of three ways—by direct concession from the Government or municipalities, by preëmption under the agricultural law, or by direct purchase from individuals. In the first two ways, the lands will cost nothing or a nominal price; in the latter, the lands will cost from $5 to $10 per acre.

A new plantation of coffee will commence to produce a profit by the end of the fourth year after planting, and after the seventh year a profit of from 100 to 300 per cent on the capital invested may be expected. The average cost of the production of coffee, after the plantation is well started and five years old, will not exceed 7 cents per pound.

The preparation of the land for a coffee plantation will consist only of clearing it off well and keeping it clean. The young trees are to be secured from a nursery, and cost from $10 to $20 per thousand. Nurseries, of course, are maintained on every plantation. The young tree is planted from twelve to fifteen feet apart, in regular rows, like an orchard in the United States, and the holes are dug about 1 foot square and 15 inches deep.

The following extract, taken from the Two Republics, of Mexico, applies so exactly to the conditions in Honduras that, with some slight changes, I reproduce it here:

All expenses of cost and planting 1,000 trees are estimated at $100; their keeping and attendance during the three following years or until they reach the bearing age, at from $80 to $100 per 1,000 trees. During the third year, the plantation produces sufficient coffee to pay expenses. The outlay for every 100 pounds of coffee prepared ready for market does not exceed $7 as a maximum price, the market price of which is, at the present time, $20 to $22 per 100 pounds.

The value of coffee plantations in full bearing is calculated at the rate of $1 per grown tree, a single acre producing from 400 to 500 trees, which price only serves as a basis of purchase, as it includes, besides the land and buildings, cattle, implements, and machinery.

Much of the labor required for the cultivation and preparation of coffee is performed by women and children, which largely increases the labor supply and reduces the cost, the average being 30 cents per day. The season for planting commences in April and ends in November, but plants raised from seed require eight months to mature before they are ready for transplanting to the field in which they are finally to grow.

The altitude best suited for coffee culture is from 1,000 to 4,000 feet above sea level, that is, up to what is termed the frost line. If the soil be rich and deep, 500 trees to the acre is a sufficient number. Results have been found more satisfactory with this number than with a greater or less number of trees per acre. The coffee districts are also among the healthiest in the country, and the climate suitable for coffee-growing is adapted also for persons accustomed to living in a temperate zone.

The soil and climate suitable for coffee-growing are also adapted for the cultivation of tobacco, corn, beans, bananas, and oranges, and in the lower-lying districts for sugar cane, rice, and most tropical and subtropical fruits, the growing of which is made accessory to coffee culture. The pineapple is the least expensive and the most profitable, especially where the planter has close and cheap transportation to the gulf ports.

To the last paragraph of the above extract, might be added the fact that a rubber tree can be placed in the center of each square of 12 feet, which, in the course of a few years, would vastly augment the income and profits of the plantation.

To do a paying business in coffee-raising in Honduras, I should recommend that no one attempt it at present unless he can command a capital of not less than $25,000, and double that amount would bring in much better returns.

As above mentioned, no income from a plantation can be expected for the first five years, and a part of the capital invested will, therefore, go toward expenses and management, labor, and care after the planting has been done. In the meantime, the machinery can be placed, the arrangements made for transportation, etc., so that no time will be lost in useless waiting.

Transportation from the interior is very primitive in its character, being by "pack mule" over the steep and rocky trails of the mountain passes to reach the coast or other shipping point. A project is now on foot to improve and navigate the River Ulua, on the north slope of the Republic, which, if carried out, will greatly facilitate transportation from the coffee regions of this Republic.

The part of Honduras best adapted to coffee culture, in my opinion, is the department of Santa Barbara, and the country contiguous to the towns of Seguatepeque, Santa Barbara, and Santa Cruz de Yojoa. These parts of the country are from three to six days' mule travel from San Pedro Sula, the terminus of the Honduras Railroad, which connects with the port of Puerto Cortez; and a shorter length of time to the River Ulua, should that river be made available for steam transportation.

For the establishment of a plantation of 250,000 coffee trees, a conservative estimate might be made as follows:

Cost of sufficient land	$5,000
Clearing, fencing, planting, and cultivation	25,000
Houses, warehouses, etc	2,500
Machinery, purchased and placed	5,000
Management	10,000
Incidentals	2,500
Total	50,000

This estimate is intended to cover all expenses up to the fourth year, when the plantation is expected to pay its own expenses—a large part of which it will pay the third year. The fifth year, as mentioned above, will yield a profit on the investment, but the plantation will be in its prime from the eighth to the fifteenth year of its existence.

Taking the tenth year as an average, the following estimate may be made as to the production and profits: Each tree should produce, say 5 pounds of coffee—a very conservative estimate—therefore 250,000 trees will produce, say, 1,250,000 pounds; 1,250,000 pounds at 20 cents per pound

amounts to $250,000; cost of production and transportation at, say, 8 cents per pound, $100,000; total profit on 250,000 trees, $150,000.

The investment, as above seen, has been $50,000, showing a profit of 300 per cent, taking the tenth year as the average. Up to the tenth year, from the fourth, such profits can hardly be expected, but for the seventh, eighth, and ninth years they will be almost equal.

A smaller amount of money invested would not give equal returns in proportion, because the management, houses, and machinery would cost nearly as much for a small plantation as for a large one. A larger sum invested would give better results, as the cost of land, planting, and care are the only matters of additional expense.

As above said, a small business in coffee cultivation will not pay in Honduras, but a man, or men, who can invest from $25,000 up, and can afford to wait five years for returns, can find, in my opinion, no better field anywhere for the investment of their money than coffee-growing in the Republic of Honduras.

Any man who means business, and who can satisfy this Government that he is acting in good faith, will receive all the aid and encouragement possible from the authorities.

JAMES J. PETERSON,
Consul.

TEGUCIGALPA, *April 18, 1894.*

MANUFACTURES IN WESTERN INDIA.

The natives of western India have a preference for goods of American manufacture, and are willing to pay more for an article made in the United States than for English or other foreign manufactured goods. I am constantly in receipt of letters requesting me to direct the writer to some firm handling American foot and hand power machinery, which is used here in preference to steam power on account of the cheapness of labor and the small size of many of the factories, and I make this report especially to show our manufacturers in what lines of articles they can compete with foreign manufacturers.

Notwithstanding the fact that there are many cotton mills in India that turn out fine cotton goods made from American and Egyptian cotton, there are thousands of yards of American cotton goods imported yearly; and the same is true in regard to many other articles.

While some of the mills and factories are still worked on the old Indian principles, there are many that are furnished with the latest improved machinery and will compare favorably with the best American and European mills.

Special attention is called to the paragraphs relating to manufactures of metal work and glass.

IRON AND METAL WORK.

During the past twenty years, the number of iron foundries and machine shops has greatly increased, and the country is less dependent on Europe for general ironwork. Importations of wrought iron and steel in bars and plates are yearly increasing. The following is a list of such structures of iron and steel as are built in India: Coasting and river steamers, launches, barges, steam boilers, bridges, tanks, piers and jetties, sluice gates, buildings, small single and compound engines, steam pumps, turbines, sugar-crushing machinery, oil mills, cotton, hay, and other presses, and grinding mills. The railroads build their own rolling stock, but they import their wheels, axles, tires, and other ironwork. Rails are all imported, as are also steel sleepers, which are much in vogue here in place of timber. Bolt, chain, and rivet making are not yet known as separate industries. Wire-working is a steadily increasing branch of work, being readily taken up by the natives.

Locks of fairly good quality are made in Bombay and Calcutta, but none of the manufacturers possess a key-cutting machine, or a good set of machine tools; their tools are very primitive. Padlocks are the only class of European ironmongery found throughout India; they are used, in preference to locks, even on safes and strong boxes.

On account of national and religious customs, brass and copper vessels for cooking, eating, and drinking are to be found in every house, and the workers in those metals are more numerous than those in iron. The hollow ware is made of imported sheets hammered into shape. Vessels used for cooking are tinned inside. Brass hinges are made and much used here on account of the destructive effects of the monsoon rains on iron hinges. The whole of this work is done by hand labor, without the assistance of any stamp or press. Machines were tried in a Bombay workshop, but the inferior sheet used would not bear the process, and it was abandoned, the experimenter not knowing that better sheets were needed for stamping than for hand work.

Machine tools are made here, but in small quantity. Most of the tools are imported.

Textile machinery is entirely made in England.

Agricultural implements are in small demand, on account of the poverty and ignorance of the cultivators. Cultivation as practiced in the United States, Egypt, and the grain districts of southern Europe has not yet been begun in India. The inauguration of systematic cultivation awaits an impulse either from the commercial community, which suffers much from the present degradation of produce, or from the educated native princes, whose revenues would be greatly benefited thereby. Until this is accomplished, agricultural implements can have only a very limited use. However, the richer native planters recognize that there must soon be a change, and many of them are introducing modern implements.

GLASS MANUFACTURES.

The value of the annual imports of glassware has reached $2,462,787. *India* possesses only one glass factory conducted on European methods,

and this is in Calcutta. There are a few smaller glass factories, but when they do not use broken imported glass they turn out goods of an inferior quality. Most of the broken glass that reaches the ports of India is sent to China, where it is worked up by the Chinese glassworkers. Good glass-making materials are to be found in India, and a factory for the manufacture of soda-water bottles alone would find occupation for a large number of operatives. Window glass is now largely used throughout India where only shutters were used heretofore. It is obtained principally from Belgium, but English soda-water bottles, either from the superior material used in their manufacture or on account of more careful testing, are found to be better than those of other countries.

WOOLEN MILLS.

There are five woolen mills in India, two of which are in Bombay. The materials made are blankets, heavy coatings, serges, and uniform cloths. Both Indian and Australian wools are used, and the future of this industry promises to be a prosperous one.

PAPER MILLS.

There are nine paper mills in India, four of which are in Bombay. The fibrous materials used for making paper are chiefly rags, babin and munj grass, rice straw, jute and hemp cuttings, and old jute bags and cloth. The quality of the paper made has improved in recent years, and there is a large and increasing sale for this product. The production of paper in India has increased 118 per cent since 1885, amounting in 1891 to 11,086 tons. India will, in a very few years, supply its own paper, the only drawback being the cost of transportation of raw materials from great distances.

JUTE AND HEMP MILLS.

There were twenty-six mills working jute and one working hemp in India at the end of the year 1891–'92. The mills contain 8,695 looms and 174,156 spindles. Their nominal capital is estimated at $8,800,000.

BRICK AND TILE FACTORIES.

As a rule, bricks are hand molded throughout India, few factories having the appliances for making bricks by machinery. The tile most in use is of native design and manufacture. A tube of clay is spun by hand on a very simple wheel made of wood and balanced and loaded with clay. It turns on a peg like a top, and having been set in rapid rotation, it revolves long enough for the operation. The tube, which is tapering in form and about a foot long by 4½ inches wide, is split by a piece of string into halves, which, when dried and burned, become the country tiles of India. One layer with edges up and one layer with edges down is what is termed a single tiling, and twice the quantity is double tiling. No fastenings are used, there being only one support at the eaves of the roof to pre-

vent them from slipping off. They are repaired once a year before the rainy season.

In large towns, the European pattern of tile is coming into vogue. The greatest number of European tile factories in India are in Malabar and South Canara, where water carriage along the coast affords a cheap means of transportation. The factories are closed during the rainy season. Tiles have been made in Bombay with clay from South Canara, the clay costing less for transportation than tiles, and there being no loss by damage. Coal was also cheaper at the port of arrival, and it was possible to keep the works going all the year round owing to the smaller rainfall at Bombay, but the work was undertaken by inexperienced people and did not succeed.

SILK MANUFACTURES.

The silk industry has not shared the progress of the cotton and woolen industry, for, while the exports in 1869–'70 amounted to 2,594,701 pounds, the exports in 1891–'92 were only 1,782,438 pounds. There is a silk mill at Bombay which works only for the Burmese market, and does not venture to compete with the European and Asia Minor goods. Thana, near Bombay, used to have a thriving trade in woven figured silks, which were famous for their qualities of dye and purity, but it has now lost most of its trade, owing to European competition and a growing demand for cheap goods. There are 113 silk factories in India.

ICE FACTORIES.

The first ice factory in India was built at Agra (about 700 miles from Bombay). There have been since thirty-four factories built throughout India. An ice factory never fails for want of customers.

SODA-WATER FACTORIES.

Soda-water factories are everywhere. In 1891, there were seventy-six in India. Many of the smallest factories use water from stagnant wells and pools, and some filters are never cleaned, giving a bad taste to the soda.

Many natives use the carbonic acid to make spurious champagne and other sparkling wines.

OIL MILLS.

Oil has been expressed for many centuries by the "ghanee," a mortar having a revolving pestle driven by hand or bullock power. The residual cake contains a large quantity of oil, and is fed to the cattle. This mill is still in general use excepting where Europeans have a hand in the production, European machinery, of course, giving better results. Until six or seven years ago, vegetable oils were almost exclusively used for every kind of lubrication in India. At first, mineral oils made a bad impression. Having been introduced suddenly into steam cylinders, etc., that had been lubricated by tallow or vegetable oils, the mineral oil dislodged all the burnt tallow or vegetable oils and caused great friction and "grunting."

This, of course, ceased as soon as all the dirt had been removed. "Ghee," a clarified butter used by the natives, is adulterated with the vegetable oils and animal fats. It is an established fact that India can not supply the demand for butter; hence the adulteration.

H. J. SOMMER, JR.,
Consul.

BOMBAY, *April 13, 1894.*

TRANSPORTATION AND TRADE WITH SOUTH AMERICA.

In my report dated February 28, 1894,* I ascribed to inadequate transportation the very small trade existing between the United States and the Pacific coast countries of South America, as compared with that of the European nations. To make clearer the necessity for better transportation, I have continued my investigations and have gathered additional data, which, I believe, will strengthen the views I expressed in said report.

I have discovered no natural causes operating against the extension of American commerce in these countries. On the contrary, the natural conditions favor it. Yet commerce is carried across the American Isthmus and Gulf of Mexico and thence across the Atlantic to the distant ports of Europe.

The explanation for this diversion from natural channels, to my mind, is found in the following comparisons of distances from New York and rates of travel for first-cabin passage, viz: To San Francisco, by Columbian and Pacific Mail lines, via Panama, twenty-nine days, 5,100 miles, $120; to Callao, by Columbian and English or Chilean lines, via Panama, fifteen days, 3,362 miles, $167; to Valparaiso, by Columbian and English or Chilean lines, via Panama, twenty-two days, 4,633 miles, $225; to Liverpool, by Cunard steamers, seven days, 3,500 miles, $60. It will be observed that these rates of passage from New York to Callao and Valparaiso are virtually prohibitory to the average American tourist, prospector, and commercial traveler. They must operate likewise with many South Americans who, with cheaper rates, would visit the United States and eventually form commercial relations there. These classes are the pioneers of international trade, and their absence in both regions is explained by the preceding rates.

The conveyances between the United States and Colon are the Columbian line steamers, carrying mails and departing every ten days from New York. Relying, doubtless, upon these infrequent departures, which bar competition, the European steamships plying between Colon and European ports, which occupy nineteen days on the voyage, charge passengers £40 (about $190) for the trip. The stoppages at Callao and the waits at Panama generally prolong the voyages to thirty days from Valparaiso to New York.

*"American Trade with Peru," CONSULAR REPORTS No. 164 (May, 1894), p. 62.

Add to this seven days to cross the Atlantic, making a total of thirty-seven days, and it is seen at a glance why Chilean travelers to Europe avoid the United States.

A young American, who called at this consulate recently, while on his way from Valparaiso to New York, expressed chagrin at having taken the Pacific route. He stated that he could have gone from Valparaiso over the Transandine Railway to Buenos Ayres, thence to Europe, and from Europe to New York in nearly the same time and for exactly £3 more; that is, for $15 more he could have traveled over 12,000 miles on the Atlantic side, against 4,633 miles on the Pacific side.

A change in this curious condition would turn the tables, as the trip from Valparaiso to New York could easily be made in sixteen days. Adding seven days to cross the Atlantic, Chilean travelers could go to Europe via the United States in twenty-three days.

From Colon to New York the voyage of 2,026 miles is made in six days. Thence in seven days to Liverpool, making thirteen days from Colon to Europe, a saving could be made of six days in time and about $75, contrasted with present conditions. New Orleans is 1,350 miles from Colon, and the voyage should be made in three and a half days; thence to New York it is forty hours by rail. South American travelers in the same time as above stated and at little more cost could, by this route, see a great portion of the United States.

The same process of circumlocution with regard to South America exists in the United States, as will be observed by the following table of distances by rail:

From—	Distance.	From—	Distance.
	Miles.		*Miles.*
Kansas City to New York	1,400	Chicago to New York	850
Kansas City to New Orleans	940	Chicago to New Orleans	915
St. Louis to New York	1,100	Cincinnati to New York	750
St. Louis to New Orleans	700	Cincinnati to New Orleans	826

New Orleans is 700 miles nearer to Colon than is New York. It is the natural outlet, by our great inland water routes, for Wheeling, Pittsburg, Cincinnati, St. Paul, St. Louis, Kansas City, and other great trading and manufacturing centers. Many of these centers are nearer to New Orleans by rail than to New York. Yet, including New Orleans itself, these centers have only the angular route via New York for the transportation of their mails, travel, and freights to Colon and the west coast of South America, leaving out of consideration the still longer route via San Francisco.

To quicken and cheapen transportation from all parts of the United States with this coast, a weekly steamship and mail service should be established from both New York and New Orleans, arranged to give a steamer semiweekly from these two ports and from Colon. Another American mail

line of fast steamships should be established for the South American Pacific coast to operate in conjunction with the first-named lines.

Quicker time and reduced rates by these lines could not fail to bring about a radical change in our trade relations with these countries, whose combined population amounts to not less than 9,000,000. I include Ecuador, Peru, Bolivia, and Chile in this calculation.

LEON JASTREMSKI,
Consul.

CALLAO, *March 20, 1894.*

SHIPPING MOVEMENTS AT CALLAO.

It is extremely difficult to obtain statistical information of any character from official sources, and in consequence, this consulate is compelled to glean information about the movements of trade at this port from newspaper publications, etc.

The Callao correspondence of the Comercio, of Lima, April 5, 1894, contained the following statement of maritime arrivals at the port of Callao during 1893: Miscellaneous cargo, 21 vessels; wheat, 25; rice from India, 7; coal, 29; lumber, 11; saltpeter, 1; Peruvian products, consisting mainly of charcoal, wood, and timber, 99; in ballast, 10; total, 203 vessels.

The same authority, under date of April 12, gives the following statement of arrivals in 1873, in proof of "the enormous decadence" of the country:

Cargoes.	Vessels.	Tons.
Sailing vessels:		
Asiatics	18	10,238
Miscellaneous cargo	169	98,249
Coal	105	95,244
Lumber	58	38,071
Railroad materials	5	3,775
Wheat and flour	56	19,422
Rice from India	8	3,256
Horses and mules	3	1,867
Peruvian products	297	34,130
Guanape guano	77	59,299
Macabi guano	53	43,964
In stress	11	9,656
In ballast from coast	105	74,514
In ballast from foreign ports	131	100,591
Total sailing vessels	1,090	592,276
English, French, and German steamships	547	500,890
Coastwise ports	518	5,003
Total	1,065	505,893
Grand total	2,155	1,098,169

The movements of passengers is likewise given as follows:

Year.	Arrivals.	Departures.	Excess of arrivals.
1884	26,026	17,389	8,637
1885	23,950	15,589	8,361
1886	21,828	18,492	3,336
1887	15,515	15,071	444
1888	16,870	15,995	875
1889	24,306	21,137	3,169
1890	23,789	19,733	3,996
1891	22,268	18,719	3,549
1892	21,695	17,632	4,063
1893	20,391	19,284	1,107
Total	216,578	179,041	37,537

LEON JASTREMSKI,
Consul.

CALLAO, *April 16, 1894.*

CULTIVATION OF FLAX IN HOLLAND.*

Unfavorable seasons, with consequent inferior quality of crops and unremunerative prices, added to the high taxes and higher ground rents with which suitable flax land is encumbered, have, among other causes, of late years led to a marked decrease of the flax industry in the Netherlands.

The total production of flax in this country from 1889 to 1892, as well as the yield per acre, is shown by the following table:

Year.	Production.		Yield per acre.	
	Seed.	Fiber.	Seed.	Fiber.
	Bushels.	*Tons.*	*Bushels.*	*Tons.*
1889	536,570	9,323	12.75	0.221
1890	424,507	7,464	10.45	0.18413
1891	286,231	5,984	7.92	0.16794
1892	275,364	5,172	8.15	0.17182

For the year 1893, no official statistics are yet available, but the figures will no doubt show a further decrease. In the current year, however, an increased acreage has been devoted to flax, and, so far, the outlook for a good crop is favorable.

As will be seen from the above table, the seed, as well as the fiber of the flax plant, is saved and utilized in Holland. The impression which seems to prevail that flax here is cultivated chiefly for its seed is erroneous. Nor does the saving of the seed injure the fiber, if care and skill be exercised.

Messrs. E., S., and C. St. Martin & Co., flax merchants of Rotterdam,

*See CONSULAR REPORTS No. 127 (April, 1891), p. 626, and No. 154 (July, 1893), p. 263; also, Special Consular Reports entitled "Beet Sugar and Flax Cultivation."

taking exception to a statement made in a report on the cultivation of flax by the United States commercial agent at Dunfermline* to the effect that in Holland flax is raised chiefly for the seed and that the quality of the fiber is thus injured, write as follows:

> Such being in contradiction of the state of things, we consider it worth while to bring to your notice that the saving of the seed does not in the least interfere with the raising and the saving of the fiber in A1 condition here.
>
> We admit that a well-raised crop of flax, steeped in the River Lys (at Courtrai, Belgium), renders a light, yellowish fiber of higher value than the same flax retted in Holland in still water (blue), but it is a fact that good to fine threads are seldom spun without at least an addition or mixture of superior blue Dutch flax, which fact Messrs. W. Barbour & Son, R. Stewart & Sons, Harris & Son, Ullathorne & Co., Jo. J. Knox, Finlayson & Bonsfield, J. D. Gruschurtz & Sons, and other first-class thread-spinners will confirm. Now, how were we to produce blue fiber of high value here when saving of the seed interfered with the raising of the superior class required for such an article? This idea was the hobbyhorse of Irish flax-growers for one hundred years, but gradually they came to their senses, and, in some parts of Ireland, the saving of the seed has been tried with success for the last three years without reducing the value of the fiber, and we ourselves saw, a few weeks ago, some splendid seed, the fiber of which brought 12*s.* 6*d.* per stone (£100 per ton) in the Ballymena market, being then the highest quotation realized for flax in Ireland.

Holland flax is used in the manufacture of the finest descriptions of linen and damask, and is extensively employed in continental, British, and American thread manufacture. It is disposed of principally through Rotterdam flax merchants, who possess a technical knowledge of the requirements of the spinners.

A large quantity of raw material is sold to Belgium to be steeped in the River Lys, near Courtrai, as the processes of retting in vogue there impart to the flax a higher value for strong and fine spinning.

As to whether the superiority of Courtrai flax is to be ascribed to the peculiar qualities of the waters of the Lys or is the legitimate result of superior skill and improved methods, authorities differ. Certain it is that the Courtrai flax enjoys a reputation for silky softness and luster which producers in other districts hitherto have striven in vain to attain.

Whatever may be the properties of the waters of the Lys, it can be safely stated that pure, running water is more advantageous for retting purposes than stagnant, unclean, or muddy water. Experiments have established the fact that retting in river or canal water, in perforated boxes or crates, after the manner of the Belgian process, gives much better results than retting in ditches of standing water. But hitherto, the flax farmers of Holland have not been permitted to make use of the rivers and canals for this purpose (except lately the River Waal), on the ground that it would interfere with navigation and pollute the water and render it unfit for drinking purposes. The same prohibition, I am given to understand, has obtained in Ireland, because flax-retting in the rivers would destroy the fish.

Experiments have also been made, and with very good results, of retting in basins of mason work, into which the water is led through pipes. This,

* Published in Consular Reports No. 154 (July, 1894), p. 266.

of course, is a costly process, but it has many advantages, chief among which are, perhaps, the valuable fertilizing properties imparted to the water so used. In Neerpelt, Belgium, the water from such retting basins is successfully utilized for reclaiming the surrounding sand wastes and rendering them fit for cultivation.

Although flax in the Netherlands is raised on almost any kind of soil, that best adapted for flax culture seems to be the light, clayey soil reclaimed from the sea and rivers.

The seed used here is, in the first instance, specially selected Riga (Russian), which produces a weighty, coarse fiber. The second crop yields a finer fiber, with better spinning quality, and consequently of greater value. The seed saved from this crop can be used on light soil, and is also taken when no trustworthy Riga is available. It is likely to produce a rather "wefty" article, of comparatively high value, and the seed of this crop is exported to Ireland, Germany, and France for sowing purposes, being better adapted for the heavier soil in those countries.

The Riga seed is generally sown, weather permitting, in the latter part of March; all other kinds of seed during April, as soon as the soil shows symptoms of working. Before sowing, the seed is carefully cleaned. This is very important, as the flax fields are apt to be overrun with weeds. The sowing is done by hand, pains being taken to spread it as evenly as possible. From 80 to 100 quarts of Riga seed and less than 75 quarts of Dutch seed are spread to the acre.

The germinating capacity of the seed is tested before sowing. This is done by the following simple process: The seed is put between two thick sheets of wet brown paper or flannel, with a thin layer of damp earth under and over this covering, and placed in a moderately warm room. In four or five days the percentage of dead seed can be easily ascertained, and its character thus determined.

In Holland, the owner of the land, as a rule, only prepares the soil and sows the seed. Then the land is let or the growing crop is sold to the so-called "Vlasboer" (flax farmer), who weeds, pulls, winnows, ripples, steeps, and prepares the flax for the market. Thus there is in Holland a large body of skilled laborers who follow the secondary occupation of flax farming above described, as a distinct industry.

The flax is pulled as soon as the seed is fully developed and the plant shows signs of ripening. After having been pulled, it is tied loosely into sheaves and exposed, standing, to air drying until fully cured or dried, after which it is placed in ditches to steep, being weighted down so as to be entirely submerged.

When the straw can stand the test of being drawn clear from the fiber, it is taken out of the ditch and exposed for a day or two in the field, put up in the form of shocks to protect it against rain. When dried, it is housed and broken by an American "break," and, as a rule, scutched by hand.

The cost of producing flax fiber ready for market may be estimated at the present time to average about 15 cents per pound.

I desire to acknowledge my indebtedness to Mr. C. M. St. Martin for his courteous and valuable assistance in procuring data for the above report. I also wish to record my obligations to Mr. F. M. Walker, from whose interesting articles on flax culture, published in the Irish Textile Journal, I have derived material aid.

LARS S. REQUE,
Consul.

ROTTERDAM, *May 15, 1894.*

TRADE AND INDUSTRIES OF DENIA.

The Denia consulate includes the ports of Gandia, some 20 miles to the north; Jabea, 6 miles to the south, embracing the most important and fertile part of the raisin district; and the "Huerta de Gandia," one of the richest parts of Spain—highly cultivated and esteemed by the Moors, the progenitors of the present laborious, frugal, and sober inhabitants.

The principal product of this district is the muscatel grape, used in making the well-known Valencia, or scalded, raisins. Besides this, wine, olives, almonds, oranges, rice, pomegranates, mulberry trees for silkworms, and, more especially in the "Huerta" above mentioned, immense quantities of vegetables and fruits are produced.

RAISINS.

Raisins, constituting the principal article of export, should be put in the foreground in considering the trade of this district. The extent of this crop and its mode of cultivation and packing have been extensively treated in Mr. Gustav Eisen's work, entitled "The Raisin Industry," published in 1890. Some errors in this work and changes introduced since its publication call for comment.

The raisins shipped from here for centuries have been prepared as "Legia," or scalded, raisins, so well known in the north of Europe and in the United States as "Valencias." The years 1880 to 1884 were extremely good ones for the growers and packers of this article, as both the European and American markets bought freely at rates averaging from $4 to $6, first cost. In 1882, an innovation was introduced by Mr. John D. Arguimbau, formerly American consul here, in the packing of selected fruit in layers, with fancy papers and brands, a style of packing ridiculed at first by the old traders, which found great favor in the United States, where it competed with, and drove out of the market, to a large extent, the muscatels, or sun-dried raisins from Malaga. The demand created for this packing helped to sustain prices, but changes in other branches of trade and other matters which I shall mention have operated seriously against the business, until it is now in a most depressed condition. Prices, indeed, have reached

a point below which it is impossible to go without reducing the great mass of the population to want. Ready and economical maritime transportation has of late years so inundated the British Islands and the north of Europe with green fruits at all times of the year, as well as with canned fruits, principally American, which are highly esteemed, that there is no longer a great demand for dried fruit. No doubt, fashion has also a great deal to do with these gastronomical matters. Owing to this, and to the fact that, in the treaty made by the British with the Greek Government some four years ago, the duty on currants was reduced from 7*s.* to 2*s.* per cwt., the demand for raisins in the United Kingdom has grown much smaller, and can not now be depended upon as it could be in the past. The high prices current ten years ago encouraged the Valencia farmers to plant vines on land formerly unproductive. Large tracts of orange, almond, and wheat land were also laid out in vines, thus greatly increasing the crop. This overproduction is an important factor in the present difficulties. Great things were expected of the United States, where it was thought a continually increasing population would consume all the Spanish crop, but American enterprise and capital have laid the virgin lands of California under contribution to add to the national production and wealth, and the producers of raisins in this old land find that notwithstanding the undoubted increase in the consumption, which they had hoped to supply, they are forestalled by that young and vigorous State.

The season of 1890 was a very brisk one, and good prices prevailed, but this was owing to an artificial demand created by the desire of American jobbers to have good stocks laid in before the McKinley tariff came into operation. This was proved at the end of that campaign, when stocks of raisins still in the farmers' hands were sold at from $1.50 to $2 per quintal, first cost. In 1891, exportations to the United States declined very considerably, while, owing to larger quantities being destined for the English markets, prices fell steadily and the people began to lose heart. Less care was taken in cultivating the land; fertilizers (such as artificial guanos) were more sparingly used, and old vineyards were rooted up sooner than usual to be planted with other crops. These various causes did not produce immediate effects, as the crop of 1892 was fairly good, amounting to 607,128 quintals, but that of 1893 did not exceed 490,000 quintals, being, say, 5,800 tons less than the crop of the preceding year, and nearly 100,000 tons less than the largest crop on record—that of 1890.

Some four years ago, attempts were made by a few of the growers here to cure their raisins on the Malaga system, hoping that by substituting the sun-dried, or muscatel, raisin for their Valencia, or scalded, raisin, the demand would improve. This has resulted beneficially to a certain extent, but the inability of some and the reluctance of others to incur the necessarily increased expenditure and the want of the requisite technical knowledge for the proper application of the new method, have, as yet, been difficulties in the way.

The absence of direct foreign trade in this article has added to these difficulties. The largest growers are, as a rule, those best able to prepare their fruit properly for sale abroad, and these generally consign it on their own account to England. A little has gone in the same way to the United States, and in both countries fairly remunerative prices have been obtained. The majority of farmers trying this new method produce lots too small to be advantageously shipped alone. These generally send their product to Malaga, where it is sold at relatively low rates to merchants, who repack it under their well-known brands and sell it abroad as the produce of their own district. American and English merchants do not think of sending orders to Denia for muscatel raisins; but although this mode of preparing the raisins has not as yet had very favorable results, there is no doubt that it is fighting its way, and in a few years will be a factor of importance in the trade.

The bad state of trade during the past year, both in the United States and the north of Europe, has undoubtedly contributed to accentuate the depression in this business. It is expected that a new treaty will be concluded with England, equalizing the duties there on raisins and currants. If all these hopes and expectations are realized, no doubt an improved era will have opened for this district; should they not be realized, these long-suffering Spanish farmers will be forced to still greater economy. A few may give up the fight, changing their crops, but the immense majority will still continue making raisins as their forefathers have done.

GRAPES.

About 76,000 barrels of 28 pounds each and 2,000 cases of 42 pound each of grapes were shipped from Denia and Gandia during July and August, the largest proportion to London and Liverpool. The first half of the shipments realized fairly remunerative prices, but the last lots arrived in bad condition, and ruinous prices were the rule. It has been noted this year that all fruits have rotted very quickly, and grapes have not been an exception. This is attributed to the excessive heat and long spell of dry weather. No rain fell from March to November. The grapes shipped from here are principally the muscatel, and these are finer than those grown in any other part of Spain, but, probably owing to the soil, they have not the keeping qualities which make the inferior Almeria grape so much sought for. A great many "Black Valensi" are also shipped, and these sell well in England.

ONIONS.

About 126,000 crates and 14,700 cases of onions were shipped from Denia, Gandia, and Jabea. The crates all go to the United States and Canada and the cases to the United Kingdom. The greater part of the crates were sold in New York at comparatively low prices, partly caused by the onions arriving in bad condition, and partly by the slack demand. No

one here seems to have made money on this article, and some of the shippers confess to heavy losses. The quality of the onions is fine, and they are very much appreciated in the United States, but the present duty, equivalent to 100 per cent on their free-on-board value, prevents many of our citizens enjoying this vegetable.

VARIOUS FRUITS.

Considerable quantities of other fruits are shipped from this district, but of these, only a few almonds find their way to the United States. The greater part of these are sent to England, which country almost entirely absorbs the oranges and tomatoes, while the peanuts go to Germany and Holland. The trade in tomatoes with the United Kingdom has largely increased since English seed was introduced here some years ago, and during the past year, 441,279 bushels were shipped from Gandia alone.

SHIPPING AND NAVIGATION.

The British flag is borne by a great part of the vessels engaged in the carrying trade from this district. These are prohibited, by treaty, from participating in the coasting trade, which is monopolized by the Spanish vessels, but the line of Spanish steamships doing a large part of it and also a very considerable share of the English and German trade, is largely owned and principally managed by British subjects. No American vessel has touched at this port for many years.

POPULATION AND INDUSTRIES.

It is next to impossible to give the exact population of this district, comprising dozens of small towns and villages, scattered over a wide extent of country. Taxes being levied in Spain on the municipalities and private taxpayers, according to the population, it is to every one's interest to keep the official census as low as possible. What applies to taxes has also a bearing on the number of conscripts levied for the army; consequently, another and powerful reason is given for the omission of a certain number of inhabitants from each census.

Denia has a population of about 14,000, Gandia 12,000, and Jabea 10,000, and the death rate averages about 20 per 1,000 in the two first mentioned. In Jabea it does not exceed 18½, owing probably to the fact that the town is built upon a small eminence, with hard subsoil, preventing percolation. Nature is very beneficent to this country, otherwise the death rate would be much greater, for public hygiene is entirely neglected and sewerage is unknown.

The great mass of the population is occupied in agricultural pursuits. Peasant proprietorship being the rule here, the land is very much subdivided and well cultivated, and this, no doubt, helps the farmers to resist the bad epochs, as, having no rent to pay, all that the land produces is available for family expenses and taxes. Usury, however, is not unknown, and conse-

quently mortgages are common. These, as a rule, lead, as in other places, to accumulation of property in single hands. This is, however, counterbalanced by the Spanish law, obliging a father at death to distribute his property almost equally among his family. Wages for agricultural laborers average 25 cents for males and 15 cents for females per day; but a great many find occupation in the packing of the various fruits at 40 cents and 20 cents, respectively. About 6,000 women and children thus work in Denia during the raisin season (from August to December), and by living very economically, they manage to hoard up enough to buy clothes at the annual fair held here in October, and help to subsist during the winter. Some 800 men and lads work during the fruit-shipping season, handling the fruit and as stevedores. These strive to earn a living at the sardine and other fisheries during the balance of the year.

The deplorable state of business generally has caused an increase in emigration to the French provinces in the North of Africa, where the hard-working, frugal, and sober laborers from this district find plenty of work and good wages. From Jabea, 917 persons took passage thither in a small steamer during the past year.

No industries of special importance exist in this district. Denia counts only on her three sawmills, where about 170 men are employed, but in Gandia there are a great many small industries, such as curriers, *alpargateros* or makers of cord-soled shoes, lock-makers, etc., and two silk manufactories still remain, relics of this great industry in Moorish times.

PUBLIC WORKS.

No public works of special importance have been begun during the past year, but I should mention the semaphore on Cape San Antonio, 4 miles southeast of Denia. This has been building for some years, but is now near completion. This semaphore will, no doubt, be found very useful by vessels navigating this part of the Mediterranean, which take this cape as one of their bearings. The harbor at Gandia, built by an English company to act as a feeder to their railway line to the important manufacturing town of Alcoy, is now utilized by nearly all the vessels arriving at that port. Occasionally, a large Atlantic vessel arrives, drawing so much water as to be obliged to load outside, but these exceptions are few, and without doubt the port is an important factor in the development of Gandia. Masters of vessels complain of insufficient light for entrance at night, but this can be easily remedied, and, no doubt, will be.

TRADE WITH THE UNITED STATES.

That trade is very much depressed in this district at present is patent to the most casual observer. The region depends principally upon raisins, and all branches of trade participate in the depression. The United States do a considerable part of the business in fruit, but it is to be regretted that it is not done altogether directly. English merchants have a strong foothold,

and get nearly all the consignments, and not a few of the purchases pass through their hands, out of which, of course, they derive a profit, which should be made by our own dealers. They work for the trade, and deserve to get it, but I think our fruit merchants should endeavor to procure a share, which I feel sure they could get. The English houses send out representatives, often partners, in July, to look after consignments of grapes, and these remain until November for the raisin trade. These agents visit the growers and packers personally, and, advancing a reasonable amount against consignments, are able to remit good parcels to their respective houses in London, Liverpool, Bristol, Glasgow, etc. There is some competition among them, as Spanish packers compare notes, and if they find that the *gastos* (charges) are higher than those of the house with which their neighbor deals, they soon transfer their business. In spite of this, the business must pay, and fairly well, too, otherwise English houses (many of them wealthy) would not continue, year after year, sending their representatives here at a heavy expense.

I do not say that our New York, Philadelphia, or Boston houses should do the same, because the distance is too great and the journey too expensive, but they might have a reliable agent residing here, canvassing for the trade, and I have no doubt they would find it remunerative. In past years, the English houses used to make blank advances to growers and packers months before the crops matured, but this led to heavy liabilities and bad debts, and is continued now only in exceptional cases. Cash against documents, or, say, bills of lading, is the rule, and American agents would not be compelled to do more. We should also get a share of the large importations of lumber, wheat, and flour.

The lumber comes here principally from the Baltic and north of Spain, but the American forests can supply as good a quality and at as low rates. The wood from the Baltic is paid for in bills at three months, and the merchants dealing in this article are quite solvent and highly respectable. I am much indebted to Don José Riera Vallalta for information relating to the lumber trade. This gentleman is the owner of two of the three sawmills in Denia, and employs 130 men.

The wheat is principally from Bombay, purchased in Marseilles, but the larger part of the flour is milled at Barcelona, because two years ago, the duty on foreign flour was raised to protect the Spanish mills.

Something also might be done directly in canned meats. Those sold here are all American, but come from England, thus increasing the cost considerably, and causing the retail prices to be almost prohibitive. For example, a 2-pound tin of corned beef is retailed in Denia at $1, while the first cost in the United States is only about $1.50 per dozen. Canned salmon is retailed at 60 cents here, costing from $1 to $1.50 per dozen in the United States.

This report will serve as a reply to the many letters I have received from different parts of the United States, and will, I trust, help to stimulate trade

with this district, a result which depends largely upon the efforts of American merchants, as I can assure them that the Spaniards bear toward us a most friendly feeling, and are very desirous of enlarging their trade with the United States.*

RANSOM F. McCRILLIS,
Consul.

DENIA, *February 8, 1894.*

EGYPT'S COTTON TRADE WITH AMERICA.

The shipping of cotton from Egypt to the United States, casually considered, seems as anomalous and superfluous as the "sending of coals to Newcastle." But the statistical record of commerce between these two countries gives a sufficiently distinct affirmation to make the political economist recognize in Egypt a country that is aggressively competing with us, in a small way, not only in the markets of Europe, but at home, in supplying raw cotton.

So much has been published describing methods of cultivation in Egypt, with the crude implements employed, and the essential but easy irrigation from the Nile, that every reader must be aware that the Lower Nile Valley is, at the present day, turned into a vast cotton field. But I know of no record of the marvelous increase in the consumption of Egyptian cotton by the spindles of the New England States, which has grown from nothing ten years ago to be more than 40,000 large bales, corresponding in weight to 60,000 American bales, and approximately valued at $3,000,000.

The story of the development of cotton culture in Egypt reads like a romance. In 1821, a French botanist found growing wild in the garden of a Cairo bey a few plants possessing a long-stapled fiber, which he recognized as cotton of an exceptionally fine quality. The sagacious Mehemet Ali seized upon the discovery and turned it to benefit. Beginning with the vice-regal farms, the raising of cotton became general as soon as it was known that its quality secured for it a quick market at high prices. There were experiments in 1838 and a few succeeding years with sea-island seed from America, which promised well, but the Egyptians soon returned to the native seed, which, ever under observation, has, from time to time, been improved upon.

The Khedivial Government has not officially stated the cotton area since 1892. That year it was 863,552 feddans,† but competent authorities estimate the increase in 1893 to have been at least 8 per cent, and the increase of the present year over 1893 at from 15 to 20 per cent. Taking the minimum estimate, this season's cotton area is at least 1,072,541 feddans—truly an astonishing advance.

It was only ten years ago that Egyptian cotton had its practical introduction into the United States, and the trade has increased with marvelous facility,

* Tabular statements showing the imports, exports, and navigation of the Denia district, which accompanied Consul McCrillis's report, will be published in Commercial Relations for 1894.

† 1 feddan=1.03 acres.

as will be seen by reference to the following table showing yearly production and exportation to the United States:

Years.	Produced.	Shipped to the United States.
	Bales.	*Bales.*
1881–'82	425,000	.....
1882–'83	389,000	.....
1883–'84	384,000	.....
1884–'85	500,000	4,553
1885–'86	406,000	3,645
1886–'87	417,000	4,709
1887–'88	411,000	5,790
1888–'89	389,000	8,430
1889–'90	427,168	10,470
1890–'91	538,003	23,790
1891–'92	612,025	27,799
1892–'93	680,085	42,475
1893–'94	631,000	*40,000

*The commercial depression has caused a temporary falling off of shipments, but good judges estimate the above.

Nearly all the cotton sent from Egypt is consigned to Boston commission agents and sold to New England mills. Those interested in the trade assert that the use of this cotton is in no sense inimical to home interests, for, with its staple of from an inch to an inch and a half in length, the Egyptian cotton is employed in the making of sewing threads and goods requiring a silky or lustrous finish, for which American cotton is unsuited. It is claimed, also, that the home-grown article is extensively mixed with the imported, and thereby utilized in ways that would be impossible without this foreign staple as a basis.

Egyptian cotton is packed in compressed bales weighing from 700 to 750 pounds, or nearly 50 per cent more than American bales, and is sold by net weight. Absence of direct steam communication with the United States makes transshipment in England necessary, and the present freight charge from Alexandria to Boston is in the neighborhood of $3.87 per ton of 40 cubic feet, say for 2 bales. For some reason, not obvious, the freight to New York is 50 cents per ton more than to Boston.

If the published statistics of American consumption in 1892–'93 of 3,189,000 bales is correct, Egyptian cotton figured therein to the extent of about 2¼ per cent.

This year's area of considerably more than 1,000,000 feddans is the largest ever devoted to cotton in Egypt. The plants are already well rooted and strong, which was not the case a year ago, when continued bad weather disarranged the planting season and seed had to be sown two or three times, this accounting for the diminution from the crop of 1892, which was the largest on record. With average weather and irrigation, the latter almost assured, the crop of 1894 bids fair to exceed 700,000 bales, or 1,050,000 bales of American standard.

I may, in this connection, appropriately speak of the potentialities of this country as a cotton-producer, should the projected scheme for definite perennial irrigation, long considered and now almost assured, be authorized and carried out. With the construction of reservoirs for storing the surplus waters of high Nile, that they may be utilized in the season of low Nile, the amount of cultivable surface can be doubled, in the opinion of the Government's experts, for wherever the vitalizing Nile water can be carried, the richest vegetation follows. With Egypt's cotton crop thus augmented, southern Russia entering the field of competition, overproduction in India imminent, and the market ruling lower year by year, cotton economists and theorists in the United States have material for serious reflection.

FREDERIC C. PENFIELD,
Agent and Consul-General.

CAIRO, *May 21, 1894.*

INDIAN CORN FOR MEXICO.

The following table shows the quantity and value, in Mexican silver, of the Indian corn imported into Mexico from the United States and entered at this port for the year ending March 31, 1894:

Month.	Quantity.	Value in Mexican silver.*
1893.	*Kilograms.*†	
April	4,001,621	$71,856
May	3,672,905	66,625
June	5,114,540	86,535
July	1,343,936	26,212
August	2,516,317	46,220
September	76,418	1,166
October	35,321	1,003
November	22,644	585
December	34,715	582
1894.		
January	14,432	333
February	36,102	816
March	16,751	1,436
Total	16,885,701	303,369

*The Mexican silver dollar, on April 1, 1894, was valued at 50.5 cents (American).
†1 kilogram=2.2046 pounds.

This shows that almost the entire quantity imported during the year was imported during the first five months. The reason of this was that the corn crop for 1892 was a failure in Mexico, owing to the drought that prevailed that year throughout the corn-growing districts, while the rains of 1893 made a good crop possible for that season. This crop was almost equal to the demand, and was available by September.

The entire quantity imported was the product of Kansas and was for human consumption. Corn is the principal article of diet of a great number of the Mexican people, but as long as the Mexican duty of 25 cents (Mexican silver) per bushel is imposed, the consumption of the United States product in this country will be confined to the "free zone"—a strip of Mexican territory 12½ miles wide extending along the frontier—where only one-tenth of the duty is imposed.

It is therefore only at times following severe droughts and a famine in the Mexican corn crop, as there was in 1892, and when the tariff is suspended, as it was during the early part of the year 1893, that any considerable trade in corn between the United States and Mexico may be expected.

At this date, the indications are for a good crop for the season of 1894.

THEODORE HUSTON,
Consul.

PASO DEL NORTE, *May 24, 1894.*

FRUIT EXPORTS FROM SORRENTO.

The following report on the exportation of green fruit from Sorrento to the United States has been sent me by the consular agent at that place:

This trade commences in January and steadily increases during the summer months, closing about August. The prices of green fruit are not subject to heavy fluctuations; but at the commencement of the season they are low, and increase according to the prospects of the crop in the United States and the general condition here. This season the opening prices varied from 4 to 5 lire (77.2 to 96.5 cents) per box for oranges, and from 8 to 10 lire ($1.54 to $1.93) per box for lemons. The prices have since gone up steadily, and are now quoted at from 6 to 10 lire ($1.16 to $1.93) for oranges, while lemons have remained about stationary.

The quantity of green fruit exported from this district to the United States from the beginning of the season until April 16 was as follows: Oranges, 54,949 boxes; lemons, 2,024 boxes.

The boxes used for packing the fruit are chiefly made of American shooks, and are imported here from Bucksport and Bangor, Me.

HENRY GREENOUGH HUNTINGTON,
Commercial Agent.

CASTELLAMMARE, *April 24, 1894.*

THE GREAT SIBERIAN RAILWAY.

Soon after the annexation by the Russian Empire of those vast tracts of land known as the Amour and Littoral territories and the Ussuri country, a serious want was felt for better ways of communication to assist in retaining them, and to induce settlers to occupy and cultivate them. The first to interest himself in the matter of constructing a railway through Siberia was Count Muraviov Amoursky. After his successful expeditions on the River Amour, he reported that the channel of entrance into the river was unsatisfactory, whence came the idea of using the Bay of De Castri, in the Straits of Tartary, and of uniting it with Sophisk, on the Amour, by a carriage road which he recommended should be constructed in such a way that it could afterwards be converted into a railway. In 1857, therefore, surveys were made by Col. Romanov looking to that end. This road, however, was not destined to be built, as the means requisite were not forthcoming.

Next, an Englishman named Dull suggested the plan of constructing a horse railway from Nizhni-Novgorod, through Kazan and Perm, to one of the Pacific ports, but this scheme did not find supporters. About this time, Mr. Collins, an American citizen, asked the Russian Government to grant him the right to form a stock company to operate under the name of the Amour Railway Company, between Irkutsk and Chita. This proposition was duly examined by the Ministry of Ways of Communication and also by the special Siberian committee on roadways, and was rejected.

A third proposal followed in 1858, this time looking to the construction of a railway between Moscow and the Tartar Strait. This scheme was proposed by Messrs. Morrison, Horn, and Sleigh, English capitalists, who, although asking no guaranty from the Government, demanded such considerable privileges that a grant would have ended in throwing the entire industry and trade for many years to come into foreign hands, and was accordingly rejected by the Government.

In the same year, Sofronov brought forward a plan to build a railway from Saratov across the Kirghiz plains to Semipalatinsk, Minusinsk, Seleginsk, the Amour, and Peking. This scheme met with innumerable objections, and, like many of the others, was not supported by sufficient evidence of capital. It therefore came to no practical end.

In 1862, a scheme was proposed by Kokorev & Co. looking to the uniting of the Volga and Obi basins, the two great rivers of European Russia and Siberia. This seemed to be more practical. Surveys were accordingly made from Perm through the Nizhni-Tagil works to Tiumen, a distance of 678 versts,* with a branch of 13 versts to Irbit. This plan was further studied by Col. Bogdanovich, who, in 1866, reported to the Minister of the Interior in substance as follows:

After removing all difficulties in the way of furnishing provisions to the governments of Perm and of Viatka, it is my belief that the only practical means of avoiding a similar famine

*1 verst=0.663 mile.

to that of 1864 in the Ural country is by the construction of a railway from some of the interior governments to Ekaterinburg and thence to Tiumen. Such a road, should it be subsequently continued through Siberia to the Chinese frontier, would, in my opinion, acquire a vast importance for the development and safety of the country.

Accordingly, Bogdanovich was authorized to make surveys for the construction of a railway from Yershov through Ekaterinburg to Tiumen. The governor-general of western Siberia, Adjt.-Gen. Khruschov, took a deep interest in this subject, and in 1869, addressed a memorial to the Emperor, pointing out the necessity of a railway to connect Nizhni-Novgorod, Kazan, and Tiumen.

At this time, therefore, the question of building a Siberian railway had settled into three sharply defined routes. All three were to begin at Perm, and end, the first and third at Tiumen and the second at Bielozersk and the Tobol River. The first of these routes was named the northern, the second the middle, and the third the southern. After further consideration by the Government, it was deemed advisable to build only part of the line projected, namely, a road to join Kama with the Tobol River, a distance of 700 versts.

Surveys were made in 1872, 1873, and 1874 by the Government, and ended in the establishment of three principal routes: (1) Kineshma, Viatka, Perm, and Ekaterinburg, 933 versts; (2) Nizhni-Novgorod, Kazan, Krasnoufimsk, and Ekaterinburg, 1,172 versts; and (3) Alatyr, Ufa, and Cheliabinsk, 1,173 versts. The committee of imperial ministers, after examination, decided, in 1875, to favor the Siberian Railway from Nizhni-Novgorod along the Volga to Kazan, Ekaterinburg, and Tiumen.

About the same time, a petition was started for the construction of a road from Vladivostok to Lake Khanko, which, however, owing to the difficult position of the imperial finances, was postponed for further consideration. The Government continued to interest itself in the enlargement of the general system of railways which had reached Orenburg in 1877. The following year, the Ural railroad was opened, and in 1880, the magnificent bridge over the Volga, named in honor of the Emperor Alexander II, was completed. At the close of this year, an imperial ukase was signed for the construction of a road between Ekaterinburg and Tiumen.

It may be interesting to note that, in 1880, the engineer Ostrovsky suggested a through line across Siberia, which almost exactly corresponds with the Great Siberian Railway as now in process of construction. In 1890, a special commission was formed, under the Imperial Minister Vyshnegradsky, looking to the construction of this railway by foreign capital. Several Americans, together with other foreigners, thought seriously of forming a company for the construction of this road, but capitalists abroad hesitated to invest the money requisite for such a mammoth undertaking. A change in the imperial ministry soon after placed Serge Witte, former director of the department of railways, at the head of the Ministry of Finance. Minister Witte took the stand that work upon the Great Siberian Railway should begin at once, and that the road should be constructed by Russian capital

and Russian engineers. Accordingly, on February 21, 1891, by direct order of the Treasury, this plan was laid before the Emperor for approval. On March 17, 1891, in the name of the Czarewich, the question of constructing the Great Siberian Railway, as suggested by the present Minister of Finance, was decided in the affirmative. The imperial rescript was promulgated personally by the Czarewich on May 12, in Vladivostok, and His Imperial Highness laid the first stone of this mighty work, destined to take one of the foremost places among the important enterprises of the expiring century.

The work was divided into three parts. The first consisted of the western Siberian section, from Cheliabinsk to the River Obi (1,328 versts in length), and of the middle Siberian section, from the Obi to Irkutsk (1,754 versts), together with the completion of the Vladivostok-Grafskaya section, now nearly finished, and the building of a line to connect the Siberian Railway with the Ural mines. The second included the sections from Grafskaya to Khabarovka (347 versts), and from the station Mysovskaya, the commencement of the line on the other side of Baikal, to Sretensk (1,009 versts). The third included the building of the Circumbaikal road (292 versts), and the line from Sretensk to Khabarovka (2,000 versts). The first is under contract to be completed not later than 1900. This order of construction and division of the work was approved by imperial ukase on December 10, 1892.

GEOGRAPHICAL AND TECHNICAL FEATURES.

From Cheliabinsk to Kurgan, the road departs from the straight line only when necessary to avoid local obstructions, such as lakes, marshes, and deep valleys. Further on, it passes through Petropavlovsk to Omsk, still adhering, as far as practicable, to a straight line, and when 5 versts from Omsk, it crosses the Irtysh on a bridge 2,100 feet long. Thence, the road leads across Barabinsk steppe through the governments of Tobolsk and Tomsk, through the town of Kainsk, and when nearing the village Krivoschekov, it crosses the Obi on a bridge 2,800 feet long at the 1,325th verst.

The section from Cheliabinsk to the Obi runs, in general, through a very productive soil of chernoziom, while the climate is favorable to the growth of cereals. Through the entire length of the road, as far as Obi, there are no serious difficulties in the way of construction. The spanning of four large rivers, however—namely, the Tobol, Ishim, Irtysh, and Obi—requires the construction of earthworks and bridges. Because of the evenness of the surface, gradients are not greater than 0.0074 and the radii of the curves are 1,750 feet.

After crossing the Obi, the road leads through a hilly country and crosses five large rivers—the Obi, Tom, Yaya, Kiya, and Chulym. Nevertheless, the gradients are limited to 0.008 and the radii of the curves to 1,750 feet. From Achinsk to Irkutsk, a distance of 1,191 versts, the country becomes mountainous, and the road crosses two large rivers, the Chulym and Yenisei, and several of their tributaries. It is worthy of note that most of the Siberian rivers run from south to north, and, therefore, the line must intersect

them at their summit levels. These levels of the branches of the Altai, Gremiachevsk, Yeniseisk, and Sayansk chains are high and narrow, and, consequently, the line from Achinsk to Nizhneoudinsk and from Uktouisk was planned with gradients 0.015 and with curves 1,050 to 1,000 feet. Through this country, therefore, the topographical conditions make the construction of the roadbed very expensive, the embankments sometimes reaching 70 feet in height.

The road crosses the Yenisei at the 2,049th verst, on a bridge 3,150 feet long. The highest point of this section is at the 1,976th verst, between the Little Ibruil and the Little Kemchug, where it is 784 feet above the River Chulym and 959 feet above the Yenisei. After crossing the Yenisei, the road winds along the heights near Krasnoyarsk, and begins to climb to the summit level, first along the Berezovka River and thence along the valley of the Sitik, reaching its highest point at the 2,116th verst. It is necessary to cross the several tributaries of Berezovka and Sitik by numerous bridges. The length of this ascent is 67 versts, and eighty-two bridges and pipes are necessitated. After passing the town of Kansku, the line crosses the River Kan on a bridge 1,400 feet long. From Nizhneoudinsk to Uktouisk, the road runs through a more level country, crossing the rivers Uda, on a bridge 1,050 feet long, the Iya, on a bridge 700 feet long, and the Oka, on a bridge 875 feet long, the latter at the 2,830th verst, and passing several summit levels between these rivers. From the River Oka, the line passes across the country to Polovina station, at the 2,968th verst, where the technical features are those of mountainous sections. From Polovina station to Irkutsk, the line is more level, having to cross only the rivers Belaya and Maltinka. The Irkutsk station is fixed at the 3,065th verst, 4 versts from the ferry across the Angara on the overland from Moscow to Irkutsk and opposite the town itself.

From Irkutsk, the road wends its way to Lake Baikal, whose shore it follows for 162 versts as far as the station Mysovsk. Further on, at the 3,112th verst, the valley of the Irkut takes the form of a mountain path through which the road will be hung in cuttings of the overhanging granite crags. At the 3,146th verst, because of the steepness and windings of the River Irkut, where the line crosses the Zyrkyzunsk chain, it was found necessary to construct a tunnel 8,330 feet long, which will be bored with one continuous incline. The mountainous character of the country from the Kultushnaya to the Bystraya, 3,212 versts from Cheliabinsk, is continuous. From the 3,212th verst, the road winds along the shore of Lake Baikal, and in doing so, crosses and pierces the branches of the mountain chains leading to the lake.

In consequence of these topographical features, the Irkutsk-Mysovsk section has been estimated to cost about 4,772,000 rubles.* The country through which this section passes is entirely barren, except the town of Irkutsk and some settlements on the shores of Lake Baikal. From Mysovsk

*1 ruble=50 cents.

harbor, the line follows the shore of the lake, and then the line of the River Selenga, which it crosses on a bridge 3,185 feet long. From this point, it passes into the valley of Uda and thence along the River Pogromnaya. It then enters the Vitimsk plateau, winding along the River Domna, one of the tributaries of the Lena system. Passing the summit level between these rivers, the line climbs the eastern slope of one of the branches of the Yablonovoi chain, which serves as the summit level of the basins of the Lena and the Amour; that is to say, of the Northern and Pacific oceans. From this point, the road descends and winds round the hilly side of the town of Chita, on the bank of the River Shilka, to Sretensk. Because of the topographical difficulties, the Mysovsk-Sretensk section will cost 8,859,000 rubles.

The continuation of the Siberian Railway from Sretensk will be along the valleys of the Shilka and Amour, probably crossing the latter on a bridge 8,400 feet long at the 6,350th verst. The building of this branch will be subject to topographical conditions similar to those of the Mysovsk-Sretensk system. After crossing the Amour, the line follows the valley of the Ussuri, a distance of 400 versts, on the border of the Russian and Chinese empires. There are several large bridges planned to cross the Khor, Bikin and Iman rivers. The road comes out of the valley of Suyfun River and passes along the shores of the Ouglov and Amour gulfs, terminating at Vladivostok, the station being on the Bay of the Golden Horn.

The total length of the Siberian Railway from Cheliabinsk to Vladivostok is 7,083 versts (4,696 miles) on the main line alone.

For purposes of superintendence, the work is divided into seven sections, viz: The Western Siberian, from Cheliabinsk to Obi (1,328 versts); the Central Siberian, from Obi to Irkutsk (1,754 versts); the Baikal circuit, from Irkutsk to the pier of Mysovsk, on Lake Bai (292 versts); the Transbaikal, from Mysovsk pier to Sretensk (1,009 versts); the Amour section, from Sretensk to Khabarovka (2,000 versts); the North Ussuri, from Khabarovka to Grafsk (347 versts); the South Ussuri, from Grafsk to Vladivostok (382 versts); total, 7,112 versts (4,715 miles), including the branches to the principal rivers intersecting the main line.

A table giving the estimated cost of the construction of the Siberian Railway, not including, however, all the expenses which this enterprise will entail, is given herewith. It is the intention to institute a number of auxiliary measures in connection with the road, looking to the improvement of the economical conditions and the greater prosperity of Siberia. For example, to construct a branch line between the Siberian and the Ural railways in the interest of the Ural Metallurgical Works; to build river wharves and construct branch lines to them; to improve the Siberian rivers; to develop steam navigation on the river systems intersecting the road; to establish a route through the Northern Ocean to the mouths of the Obi and Yenisei; to assist colonization along the line; to encourage iron works to be established in Siberia along the railway; to equip and send out geological expeditions

for studying the country, and to make exhaustive researches in the Amour tract. To carry out these auxiliary enterprises during the time allotted for the completion of the first section, 14,000,000 rubles have been set apart. Requisite sums will also be appropriated for similar improvements in the districts of the other sections. These expenses will be very great, and it is now impossible to give a reasonable estimate of the outlay. All this is exclusive of the estimated cost of the Great Siberian Railway, as shown in the following table:

*Estimate of the Great Siberian Railway.**

Class of work.	Cheliabinsk to Obi (1,328 versts).		Obi to Irkutsk (1,754 versts).	
	Total cost.	Per verst.	Total cost.	Per verst.
	Rubles.	*Rubles.*	*Rubles.*	*Rubles.*
Expropriation of land	387,857	292	299,727	171
Making the track	5,845,144	4,401	12,909,873	7,360
Construction works	8,932,135	6,726	16,544,912	9,738
Laying the line	3,923,854	2,955	4,464,685	2,545
Appurtenances of the line	176,140	133	257,701	147
Telegraph	367,773	277	358,074	204
Buildings along the line	709,360	534	849,227	484
Station buildings	2,012,500	1,515	2,767,225	1,578
Water supply	617,840	465	1,304,195	743
Station appurtenances	659,050	496	748,955	427
Administrative and unforeseen expenses	4,500,570	3,389	5,525,115	3,150
Rails and fastenings	8,583,922	6,464	11,550,900	6,585
Rolling stock and workmen	8,086,700	6,089	10,691,950	6,096
Carriage of rails, fastenings, etc.	2,558,634	1,926	5,000,359	2,851
Total	47,361,479	35,662	73,272,898	42,079

Class of work.	Irkutsk to Mysovsk (292 versts).		Mysovsk to Sretensk (1,009 versts).	
	Total cost.	Per verst.	Total cost.	Per verst.
	Rubles.	*Rubles.*	*Rubles.*	*Rubles.*
Expropriation of land	48,970	168	501,695	497
Making the track	7,198,844	24,654	13,237,808	13,120
Construction works	7,116,950	24,374	9,869,932	9,782
Laying the line	742,049	2,541	2,931,002	2,905
Appurtenances of the line	36,675	126	168,523	167
Telegraph	70,201	241	242,106	240
Buildings along the line	196,860	674	587,460	582
Station buildings	557,300	1,906	1,867,450	1,851
Water supply	178,730	612	638,200	632
Station appurtenances	197,150	675	734,110	728
Administrative and unforeseen expenses	1,510,575	5,174	5,410,800	5,362
Rails and fastenings	1,867,108	6,394	6,442,426	6,385
Rolling stock and workmen	1,671,730	5,725	5,614,345	5,564
Carriage of rails, fastenings, etc.	917,678	3,143	5,063,916	5,019
Total	22,310,820	76,407	53,309,763	52,834

* The statistics in these tables are given as published by the Ministry of Finance.

*Estimate of the Great Siberian Railway**—Continued.*

Class of work.	Sretensk to Khabarovka (2,000 versts).		Khabarovka to Grafsk (347 versts).	
	Total cost.	Per verst.	Total cost.	Per verst.
	Rubles.	*Rubles.*	*Rubles.*	*Rubles.*
Expropriation of land	1,000,000	500	76,000	219
Making the track	28,000,000	14,000	4,582,353	13,206
Construction works	30,000,000	15,000	3,320,712	9,570
Laying the line	6,000,000	3,000	1,344,325	3,874
Appurtenances of the line	320,000	160	86,722	250
Telegraph	480,000	240	104,252	300
Buildings along the line	1,000,000	500	314,400	906
Station buildings	3,600,000	1,806	881,250	2,542
Water supply	1,200,000	600	249,660	720
Station appurtenances	1,400,000	700	248,500	700
Administrative and unforeseen expenses	11,000,000	5,500	2,002,125	5,700
Rails and fastenings	12,765,528	6,383	2,254,200	6,496
Rolling stock and workmen	11,223,655	5,612	1,917,670	5,526
Carriage of rails, fastenings, etc	9,566,652	4,783	1,355,713	3,907
Total	117,555,835	58,778	18,738,682	54,002

Class of work.	Grafsk to Vladivostok (382 versts).		Total cost (7,112 versts).	
	Total cost.	Per verst.	Total cost.	Per verst.
	Rubles.	*Rubles.*	*Rubles.*	*Rubles.*
Expropriation of land	247,604	649	2,561,889	360
Making the track	1,712,806	9,724	75,486,828	10,614
Construction works	2,657,280	6,960	78,441,921	11,030
Laying the line	1,189,760	3,116	20,395,675	2,896
Appurtenances of the line	62,270	163	2,108,031	156
Telegraph	118,420	310	1,740,880	245
Buildings along the line	218,375	572	3,875,628	545
Station buildings	1,170,150	3,065	12,856,575	1,808
Water supply	316,750	830	4,505,375	633
Station appurtenances	398,100	1,043	4,857,521	617
Administrative and unforeseen expenses	2,908,336	7,613	32,907,985	4,620
Rails and fastenings	2,443,852	6,401	45,565,250	6,455
Rolling stock and workmen	1,359,200	3,563	40,321,065	5,703
Carriage of rails, fastenings, etc	858,123	2,248	25,385,865	3,560
Total	17,661,051	46,275	350,210,482	49,242

* The statistics in these tables are given as published by the Ministry of Finance.

PROGRESS OF CONSTRUCTION.

The Cheliabinsk-Omsk line is fast nearing completion. The middle Siberian section, the construction of which was begun in 1893, is now well under way. The Ministry of Ways of Communication hopes to finish the Ussuri line before the term fixed, that is, before the autumn of 1894. The condition of the work on October 1, 1893, was, in general terms, as follows:

On the first section of the line, from Cheliabinsk to Omsk, which was begun in 1892, 80 per cent of the roadbed is completed. During the period

from May 20 to October 1 twenty-eight bridges were constructed on the same section, rails laid down for 240 versts, and telegraph communication opened up to the town of Omsk.

On the second section of the Western Siberian line, 751,100 cubic feet more of earthwork were handled, three station buildings constructed, and all the necessary materials prepared.

On the first section of the Middle Siberian Railway, from Obi to Krasnoyarsk, final surveys have been made on 300 versts and the remainder are now under the engineers, 833,000 cubic feet of earthwork were handled during the summer months, 20,000 railway ties were prepared, and 210,000 poods* of rails received.

On the Ussuri line, telegraphic communication has been arranged for a distance of 377 versts—two wires for 141 versts and one wire for 236 versts. The construction of station buildings is now practically completed, and the roadbed is nearly finished. Furthermore, 22 locomotives and 368 cars and platforms have been brought to this line. Since November 2, 1893, the transportation of passenger and merchandise cars has been begun between the stations Vladivostok and Nicholsk, a distance of 101 versts.

Owing to the development of the existing Russian railways and to the construction of new lines, the demands for rails have greatly increased at all the rail-rolling mills of European Russia. Therefore the construction of new mills is very desirable, especially in Siberia. None of the mills now existing in that country are able to turn out the necessary quantity of rails for a certain period. Therefore the proposition of the Bogoslovsk metallurgical district to build a rail-rolling mill has been accepted, with the sanction of the Czar, by the committee of the Siberian Railway. From an economic point of view, the construction of the above-mentioned mill will in no wise be prejudicial to the development of the rail-rolling industry in Siberia, as the 5,000,000 poods of rail which the Bogoslovsk mill has contracted to manufacture will be insufficient to supply the demands of the Siberian Railway. The prices of rails fixed by the Bogoslovsk mill are moderate. During 1892, rails were ordered at the following prices per pood, without delivery: At the Poutilov works, 1.70 rubles; at the Demidov works, 1.58 rubles; at the South Dnieprovsk works, 1.66 rubles; and at the Novo-Rossisk works, 1.76 rubles. By comparing these figures with the prices fixed by the management of the Bogoslovsk district (1.58 rubles at the factory and 1.76 with delivery at Krivoschekovo) it will be seen that these prices are lower than at the other factories. Furthermore, the Ministry of Ways of Communication had the management of the Bogoslovsk district make a deduction of 1 copeck per pood on the prices fixed for the delivery of the rails to Krivoschekovo, which, on the whole, makes a rebate of 50,000 rubles. Independently of this, the management of the Bogoslovsk works has contracted to supply a certain quantity of rails besides those ordered to replace such as may become worn out during the first ten years.

*1 pood=36 pounds.

One of the principal questions raised in 1893 by the committee of the Great Siberian Railway was the proposition to construct a temporary railway between Irkutsk and Listvinichnaya, a station on the western border of Lake Baikal, and to organize regular steam transportation on that lake, in order to join, by means of uninterrupted steam communication, the Middle Siberian with the Transbaikal railway. The realization of this scheme is especially desirable, as the construction of the Circumbaikal line, belonging to the third portion of the work, will not be finished in the near future, and as the construction of the temporary line between Irkutsk and the Listvinichnaya, a distance of 80 versts on an even surface, and the establishment of steam service on Lake Baikal will not involve great expense. On the other hand, the completion of this enterprise, especially after the construction of the railway line to Irkutsk, will be of great importance during the building of the Transbaikal line, as it will facilitate the transportation of the necessary materials. Furthermore, it will form a convenient means of communication between the Middle Siberian and the Transbaikal lines. In winter, when the steamship communication will have to be suspended, passengers can be transported from one side of the lake to the other on sledges. The Baikal is from 35 to 40 versts across at that point, so that it would be very easy to lay down a narrow railroad on the ice. Owing to the above mentioned reasons, the Czar has sanctioned the building of this temporary line, and it is now in process of construction.

The Middle Siberian Railway will be completed, according to the opinion of the Minister of Ways of Communication, in 1898—that is, two years earlier than was first anticipated. At the beginning, it was thought that rails, all necessary materials, and workmen could be brought from European Russia to one point only, that is, to the port Krivoschekovo, on the Obi, and from there the laying down of the rails was to begin. Closer investigation has shown that the rails and materials can be transported also by the rivers Chulym and Angara, and therefore rails can be laid down at the same time at Achinsk, Krasnoyarsk, and Irkutsk. Besides, it was first supposed that workmen could be had only from European Russia, but it turns out that the local workmen from all parts of Siberia are seeking work in great numbers. Owing to all these facts, the construction of the whole of the above named railway will be accomplished in 1898. The Achinsk-Krasnoyarsk section, 175 versts long, will be completed in 1895; and in 1896, instead of 1897, the construction of the line from Krasnoyarsk, and at the same time from Irkutsk, will be begun.

The construction of the Transbaikal Railway will be begun in 1895, before European Russia and Irkutsk are joined by rail. Therefore, supplies for the Transbaikal Railway are now under contract.

The construction of a cement factory in the Transbaikal will probably be decided upon and promptly undertaken, thus saving a heavy expense in transportation. In view of this, the Minister of Ways of Communication has ordered an investigation of the soil of the Transbaikal region. For this

investigation, the committee of the Siberian Railway proposes to give 8,000 rubles out of the sums appointed for auxiliary enterprises.

On the first section of the Western Siberian Railway, from Cheliabinsk to Kurgan, a distance of 240 versts, trains began to run on December 3, 1893, transporting also cargoes belonging to private persons, but only in the direction from Kurgan to Cheliabinsk, as all the trains from this point to the east are loaded exclusively with railroad supplies necessary for the further construction of the Western Siberian Railway. According to information given by the Minister of Ways of Communication, 1,000 rubles are daily earned from the operation of the section from Cheliabinsk to Kurgan, and 600 rubles from the temporary movement of merchandise and passenger trains, opened on November 2, 1893, on the Ussuri line between the stations Vladivostok and Nicholaevsk, a distance of 101 versts. On the stations Nevelskaya and Chernigovka, situated on the 146th and 184th versts of the Ussuri line, the movement of trains for transporting materials and private cargoes began on January 20, 1894. Thus, on the Ussuri line, trains are running now over a distance of 184 versts. Since January 1, 1894, 137,550 poods of private goods have been carried by this line, for the transportation of which 30,994 rubles have been earned.

Herewith, is appended a map showing the line of the Great Siberian Railway as in process of construction. This map is taken from volume V of "The Industries of Russia," recently issued in Russian by the Russian Government and translated into English and edited by the undersigned. The reader interested in the local, commercial, and strategical features of this great railway would do well to consult the above-mentioned work.*

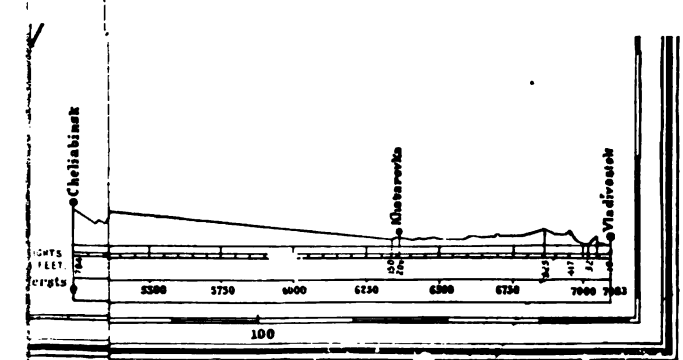
J. M. CRAWFORD,
Consul-General.

ST. PETERSBURG, *May 4, 1894.*

PROBABLE EXTENSION OF THE WHEAT AREA IN RUSSIA.

I have taken considerable pains to secure trustworthy information as to the probable extension of the wheat area in southern Russia during the next two or three years. I have talked with the heads of the departments of the Ministry of Agriculture, and especially with Count Rostovtsev, of that ministry, who has studied the question with his colleagues very carefully for the past few weeks. The result of this investigation is a report to the effect that it is absolutely impossible to make any definite estimate on this point. In fact, it is stated that there are so many adverse forces at work that it is considered doubtful if there will be any increase whatever in the wheat area during the next few years. In many instances the soil is said to be so much

* Volume V, "Industries of Russia," was published by the Russian Government in a separate volume in English entitled "Siberia and the Great Siberian Railway," with a preface by Consul-General Crawford, for the World's Columbian Exposition at Chicago.


Cheliabinsk
Khabarovsk
Vladivostok
5500
5750
6000
6250
6500
6750
7000
100

exhausted by overwork that it has been advised to rotate the wheat crop less often than has been the custom in recent years. Again, it is claimed that the prices realized by the peasants of late have been very discouraging to them. During the last few years, especially, the discrimination in import duties against Russian cereals by Germany and Austria has tended to produce an unwholesome effect on Russian agriculture. Now that Russia is admitted with her grain on an equal footing with the most-favored nations, it is hoped that stimulus will be given to the industry. However, the officials in charge of the wheat statistics have assured me that they can not estimate, even approximately, the amount of benefit to be derived by the Russian farmer under the new Russo-German treaty. It is claimed that the method so long in vogue in this country of mortgaging grain to speculators or middlemen will do more injury to the farming industry than will be offset by the advantages given to Russia under the above-named treaty.

Because of the foregoing and other uncertainties relating to this subject, the officials of the Ministry of Agriculture, who have carefully studied the questions propounded in order to assist me in furnishing reliable information, have reported that it is impossible to furnish any trustworthy estimate of the future wheat area in Russia.

J. M. CRAWFORD,
Consul-General.

ST. PETERSBURG, *June 1, 1894.*

EXPORT OF DYEWOODS TO THE UNITED STATES.

Consular officers of the United States in Brazil, British Guiana, British Honduras, Colombia, Costa Rica, Cuba, Haiti, Honduras, Jamaica, and Mexico were instructed, on December 20, 1893, to report upon the dyewood industry of their respective districts. In answer to that instruction, reports were published in the March number (162) of CONSULAR REPORTS from Haiti (p. 438), Mexico (p. 440), La Paz, Mexico (p. 441), Colombia—Panama and Colon (pp. 442 and 443), and Jamaica (p. 444). In continuation of this subject, the following reports are herewith given: Brazil (Rio de Janeiro and Bahia), British Guiana, British Honduras, Colombia (Barranquilla and Cartagena), Honduras, Mexico (Chihuahua, Mazatlan, and Veracruz), and the West Indies (Santiago de Cuba).

BRAZIL.*

The forests in Brazil are very rich in a number of different kinds of dyewoods, but principally in Brazil wood. These dyewoods are found in the States of Amazonas, Para, Maranhão, Ceara, Parahyba, Pernambuco, Alagoas, Sergipe, Bahia, and Goyaz.

*The consuls at Pernambuco and Santos report that no dyewoods are exported from their districts.

Brazil has no legislation, with the exception of municipal laws, regulating the protection or conservation of forests. As a consequence, the forests producing dyewoods, even those of the public domain, along the coast and at places of easy access, are being destroyed. The ultimate effects of such a proceeding are easily imaginable.

The exports of dyewoods from Brazil in 1889 and 1890 were as follows:

Quality.	Quantity.	Official value.	Destination.
1889.	*Kilograms.*		
Brazil wood	439,383	$9,382	United States.
	1,850,229	28,742	France.
	545,935	12,227	Great Britain.
	2,835,547	50,351	
Anil, sesame, condurú, cumarú, logwood, mivinha, tatagiba, and, possibly, any others which were not specially distinguished in the custom-house declarations	4,945	543	Do.
Total	2,840,492	50,894	
1890.			
Brazil wood	64,000	753	Germany.
	32,890	387	United States.
	64,534	754	France.
	113,336	1,334	Great Britain.
	274,760	3,228	

The above years are the only ones for which statistics can be secured.

The rate of exchange of the Brazilian milreis is of a very fluctuating nature, the value fluctuating from 20⅝*d.* per milreis in 1886 to 9 7/16*d.* at this date.

JOHN T. LEWIS,
Vice and Deputy Consul-General.

RIO DE JANEIRO, *April 26, 1894.*

There is quite a variety of dyewoods in this State that are of natural growth, but the well-known Brazil wood, which grows extensively in this district, is alone exported. I am told that much the greater part of the Brazil wood that has been marketed has been cut from lands which were being cleared for coffee and sugar plantations. At the present rate of export, it will take many generations to exhaust the supply.

The greater portion of this wood is brought to this port in small coasting vessels, and is sold at from 15 to 21 cents per arroba (32.38 pounds). To this should be added, for total shipping charges and export duties, 40 to 50 per cent, which makes the price, free on board, 22 to 30 cents per arroba.

The table following shows the number of kilcgrams exported from this port and whither sent for the last ten years.

Exports of Brazil wood from the port of Bahia during the ten years ending June 30, 1893.

Year.	Exported to—					Total.
	United States.	England.	Germany.	France.	All other countries.	
	Kilograms.	*Kilograms.*	*Kilograms.*	*Kilograms.*	*Kilograms.*	*Kilograms.*
1884	584,318	143,480	15,000	336,189	56,350	1,135,337
1885	232,912	292,212	49,568	703,497	.....	1,278,189
1886	684,008	193,189	134,857	904,348	18,569	1,934,965
1887	783,616	152,453	46,640	1,374,543	.....	2,357,252
1888	388,631	84,341	18,584	369,725	.....	861,280
1889	149,063	82,156	753,457	.....	.....	984,676
1890	58,121	166,198	78,959	127,016	.....	430,295
1891	251,873	.....	.....	670,857	21,321	944,051
1892	635,030	64,676	25,782	1,093,650	.....	1,819,138
1893	615,158	517,937	147,177	548,734	8,970	1,837,976
Total	4,382,724	1,696,642	1,270,024	6,128,559	105,210	13,583,159

The currency of this country fluctuates continually; the rate of exchange at noon to-day was 9¼*d.* (British) per milreis.

R. P. McDANIEL,
Consul.

BAHIA, *June 4, 1894.*

BRITISH GUIANA.

February 5, 1894, Vice-Consul James Spaight, of Demerara, transmitted the following minute by the Government botanist, Mr. G. S. Jenman, concerning the export of dyewoods from British Guiana:

So far as I am aware, there is no export of dyewoods from the colony. Logwood is spontaneous on the southern half of the seaboard of the country, gregarious in places and abundant, but absent over wide intervals. I have not observed it on the seaboard north of Mahaica River. Further inland, but still on the saline land which formed the original "bar," fustic is common as isolated trees, but I have not often detected it on the primeval formations behind the sand reefs, which constituted, in ages past, the original seaboard, the vegetation of which has entirely changed since that remote period. Personally, I do not think there is much chance of creating, under present natural and economic conditions, any considerable export of dyewoods from the colony.

BRITISH HONDURAS.

From the fact that logwood at one time brought $500, and even now sells at $50 per ton in the London markets, coupled with the fact that, since the earliest settlement of British Honduras, nearly two hundred years ago, continuously up to the present time, logwood-cutting has formed one of the principal industries of the colony, not only will it be seen how profitable

the industry has always been, but some estimate can be formed of the extent to which cutting operations have been carried.

Notwithstanding this, there is no immediate prospect of the complete destruction of the logwood patches, as nature has provided a means of continual reproduction in the seeds which are profusely shed by the growing trees, and, being borne by the winds and scattered broadcast, find lodgment in suitable soil, and cause new trees to spring up.

Latterly, this work of nature has been assisted by the planting by hand of several thousands of seeds, the trees from which will be ready for cutting in from seven to ten years. In districts which have been entirely denuded of trees, recourse has been had to digging out the roots, which are just as valuable for dyeing purposes as the rest of the tree. Though these roots may have been left for many years after the trees have been cut down, they have been preserved by the soil and are still merchantable.

The soil in which logwood in its native state is found is generally of a marshy or swampy character. This tree, however, will grow on almost any kind of soil except sandy or excessively dry soil.

Fustic has never been a very large export from this colony, mainly on account of its great weight, which renders it difficult to get it out from the woods, but also to the fact that it is only found at some considerable distance inland.

There have been no features of the logwood-cutting industry during the past ten years which call for special notice.

Exports of dyewoods from British Honduras.

Whither exported.	1884–'92.		January to August, 1893.	
	Quantity.	Value.*	Quantity.	Value.*
Logwood.	*Tons.*		*Tons.*	
United Kingdom	193,520	$4,052,525	7,873	$185,457
France	30,399	330,991	4,445	149,339
Russia	3,133	80,956	305	11,675
Holland	5,490	85,503	463	13,350
Italy	1,484	66,895	445	6,291
Germany	1,638	38,928	.....	.....
United States	166	4,018	.....	.....
Honduras	12	240	.....	.....
Total	235,842	4,660,056	13,531	476,393
Fustic.				
United Kingdom	63	1,293	18	257
France	.....	.....	5	82
Total	63	1,293	23	339
Grand total	235,905	4,661,349	13,554	476,642

*In American gold.

JAMES LEITCH,
Consul.

BELIZE, *March 6, 1894.*

COLOMBIA.

The follcwing figures, compiled from the Shipping List, a little commercial monthly which I have published for the last twenty years, give the statistics as to exports of fustic from the port of Sabanilla from 1884 to 1893, inclusive: To England, 6,703 tons; to France, 1,498 tons; to Germany, 4,360 tons; to the United States, 1,321 tons; total, 13,882 tons.

This would hardly be called a very large export from a country embracing such extensive forests as Colombia. The reason of the limited export is obvious. From Barranquilla to the sea—18 miles—this wood must be transported by rail, and the expenses eat deeply into the profits. When the Government gives permission for the improvement of the mouth of the Magdalena (which is only a question of time), so that vessels can safely enter, the export of fustic (the only dyewood shipped from this section) will vastly increase.

The exportation for the last ten years has caused no perceptible destruction of the forests producing this wood, and many years must elapse before the great area of forests can be notably injured.

The question propounded as to exchange is a difficult one to answer. The financial condition of the country is most deplorable, and exchange has fluctuated as much as 10 per cent in a single day. It has been as high as 200 per cent premium, or an American gold dollar representing three paper dollars of the country. The approximate value of the Colombian paper dollar is at present: In United States gold, 37 cents; in British sterling, 18½*d.*; in francs, 1.92 francs. Exchange to-day may be quoted as follows: On the United States (90 days' sight), 165 premium; on England (90 days' sight), 160 premium; on France (90 days' sight), 158 premium.

We have no chamber of commerce or exchange regulating rates, but a "go-as-you-pleasé" system, as the necessities of the buyer or seller require.

E. P. PELLET,
Vice and Deputy Consul.

BARRANQUILLA, *February 5, 1894.*

I regret to say that I am unable, after diligent inquiries, to obtain reliable statistics as to the exports of fustic outside of my own consulate. This port has no German consul, and the fustic records in the English and French consulates are placed under the general head of "woods exported."

There is no logwood shipped from this district.

The exports of fustic to the United States for the last eleven years, as taken from the record "invoice book" of this consulate, have been as follows:

Years.	Quantity.	Value.
	Tons.	
1883	114,169	$14,308
1884	33,481	4,269
1885	3,315	502
1886	21,056	2,644
1887	4,675	512
1888	7,776	940
1889	40,858	3,339
1890	142,569	6,754
1891	37,452	3,727
1892	44,610	2,940
1893	32,425	2,227
Total	482,386	41,462

It is safe to say that the quantity exported to England and Germany has been double the exports to the United States.

Like the forests of rubber and cinchona, the fustic is very rapidly disappearing. It is only a matter of a few years when it will have ceased to be an article of export from this district. I am informed that extensive forests of it exist in the interior, long distances from water courses and inaccessible, there being no roads. The expense of transporting to the place of shipment is too great to make the industry profitable, and, until railroads are completed penetrating the vast forests, they will remain untouched.

The approximate value of the currency (paper) of this country, estimated in American dollars, is 40 cents; in English sterling, 38 cents; and in French francs, 36 cents. The exchange on New York has varied for the last year from 250 to 275 per cent, and on England, France, and Germany, 5 per cent less.

CLAYTON I. CROFT,

CARTAGENA, *February 21, 1894.* *Consul.*

HONDURAS.

In former years, large quantities of fustic were exported, but during the last three years, this exportation has entirely ceased. The exportation of this dyewood depended entirely on the exportation of mahogany and cedar, as the rafts of these lighter woods were used for the transportation of fustic to the coast.

Large quantities of fustic are found throughout the entire eastern portion of Honduras, and although the forests are being slowly destroyed, it will require many years to exhaust the supply.

Lack of transportation prohibits its exportation, and unless communication from the interior to the coast is opened by railroads or river navigation or the mahogany and cedar exportations are again developed, little or

no fustic will be exported in the near future. The probability of transportation facilities being developed at an early date is at least uncertain.

Fustic from this district sold in Liverpool at £7 to £8 per ton. The freights were 50*s.* to 56*s.* (English) per ton, and as broken storage, 20*s.*

J. M. MITCHELL, JR.,

SAN PEDRO SULA, *April 24, 1894.* *Consular Agent.*

MEXICO.

I regret my inability to give a correct statement of the value and description of exports of dyewoods, the reason being the want of record books. It is supposed, however, by persons well informed, that the annual exports of logwood to Europe in years past amounted to about $50,000.

Commerce in this district is principally in the hands of German firms, which have yearly shipments of European goods consigned to them. The vessels bringing out such goods returned laden with logwood, which found a ready market in Europe.

During the last three or four years, the exportation of dyewoods from this port has diminished considerably, so much so that no one takes any interest in it, and the once rich forests that were a source of common wealth to the natives living in their vicinities are being gradually destroyed and converted into charcoal or sold as firewood to the foundries.

Small quantities of logwood and lignum-vitæ have been shipped from this port to the United States.

The following, taken from the records kept in this consulate, shows the exports of dyewoods to the United States since 1885:

Year.	Brazil wood.		Orchilla.	
	Quantity.	Value.	Quantity.	Value.
	Quintals.		*Bales.*	
1885	19,940	$39,880	15	$170
1886	.....	.....	95	960
1887	18,924	37,848	200	1,600
1888	14,650	29,300	24	200
1889	262	262	100	1,077
1890	24,113	48,226	.....	.....
1892	17,775	35,550	.....	.....
1893	100	100	.....	.....
Total	95,764	191,166	434	4,007

ARTHUR DE CIMA,

MAZATLAN, *January 31, 1894.* *Vice-Consul.*

There are no dyewoods exported from this consular district. In this part of the State of Chihuahua, there are no forests of any kind. Dyewoods grow only on the western slopes of the Sierra Madre Mountains

in this State, and are so very inaccessible that there is little or no export trade in them. What little is exported goes by way of Guaymas and Mazatlan.

R. ANDERSON,
Vice-Consul.

CHIHUAHUA, *February 5, 1894.*

The custom-house at this port (Veracruz) could furnish no statistics prior to the year 1889. I can, therefore, only give the exports for the past five years, which are appended in tabulated form.

The consular agent at Frontera reports the shipments of fustic to the United States for the past ten years at $2,183 and logwood at $58,969. He could not ascertain what the shipments were to other countries, but states that more has been shipped to other countries than to the United States.

The consular agent at Coatzacoalcos reports that the trade in dyewoods has been dormant for many years, and that only during the last year and a quarter have any shipments been made to the United States. During that time, 213 tons of fustic have been shipped to the United States, amounting to $12,820.50; to England 1,500 tons, valued at $45,000.

So far as I can learn, the trade has languished for many years and has only lately revived. The woods having been cut down at all points where the lumber could be transported to seaports, stagnation in this business has resulted; but now that the Tehuantepec Railroad has entered fustic forests, a revival in that trade may be looked for at an early date.

The prospects are that these forests will soon be a thing of the past. The destruction is continually going on, and in the Frontera district only can I hear of any effort being made to plant seed; there, I learn, seed is being planted by some of the cutters.

The rate of exchange is about the same between this country and the United States as with other leading nations, and has ranged from 116 per cent to the present rate of 202 per cent.

Value of fustic (palo-moral) exported from Veracruz during the years 1889–'93 and the countries whither exported.

Year.	United States.	England.	France.	Germany.
1889	$8,868.60	$10,266.10	$12,054.90	$7,096.70
1890	12,977.25	24,934.00	16,762.20	2,964.00
1891	29,174.60	1,061.45	473.20	2,687.75
1892	13,790.45	260.00	3,068.00	2,080.00
1893	19,931.60	28,804.10	21,013.85	8,794.50
Total	84,142.50	65,325.65	53,372.15	23,622.95

The total value of the exports to all countries during the five years was $226,463.25

The customs officials here extended me every facility at their command to aid me in making a correct report, and I have done the best possible under the circumstances.

CHARLES SCHAEFER,
Consul.

VERACRUZ, *February 27, 1894.*

WEST INDIES.

There has been no exportation of either fustic or logwood to England, France, or Germany from this district within the past ten years, and during that period no logwood has been shipped to Spain. The following shipments of fustic to Spain have been made within the past six years:

Year.	Quantity.	Value.
	Pieces.	
1888	1,731	$553.92
1889	192	61.44
1890	.....	.....
1891	40	12.80
1892	331	107.92
1893	.....	.....
Total	2,294	736.08

The shipment of fustic and logwood from this district to the United States is of recent origin. The following table shows the quantity and value of these shipments:

Year.	Fustic.		Logwood.	
	Quantity.	Value.	Quantity.	Value.
	Logs.		*Tons.*	
1888	810	$260	.....	.....
1889	350	112	.....	.....
1890	.....	.....	.....	.....
1891*	388	116	516	13,419
1892	.....	.....	414	10,779
1893*	400	276	1,869	48,209
Total	1,948	764	2,799	72,407

*In 1891, there were also 20 logs of logwood exported, valued at $502, and in 1893, 12 tons of fustic, valued at $300.

The values quoted in this report are in Spanish gold, silver now being 15 per cent off and constantly fluctuating, and not generally accepted in business transactions. United States exchange is at a premium of 10 per cent.

After penetrating 2 or 3 leagues from the sea in any portion of the eastern region of Cuba, dense forests of hard woods and dyewoods are found. In the mountains of La Sierra Maestra, there are large growths, both of

fustic and logwood, but their exportation from this district has been very meager in the past because the woods, for the most part, are located in the interior where no railroad facilities exist. The only means of bringing these dyewoods to the coast is in small quantities on the backs of pack mules or by ox trucks over dangerous and almost impassable roads, which, of course, makes the cost of marketing very material. The natives prefer to raise sugar, coffee, and tobacco, and to make rum, which yield proportionately a much greater profit, with less outlay.

The interior forests containing the dyewoods are practically untouched, but although the woods exist there in great quantities, it seems, for the reasons given and the additional one that capitalists are slow to embark in such enterprises because of governmental restrictions and taxation, that there are little prospects of their being put on the market to any considerable extent. It is true, nevertheless, that at Manzanillo, in this district, the shipment of logwood to the United States last year exceeded that of any previous year.

JOHN T. HYATT,
Vice and Deputy Consul.

SANTIAGO DE CUBA, *February 10, 1894.*

AMERICAN TRADE WITH URUGUAY.*

A letter from the Louisville (Ky.) Board of Trade, dated May 6, 1893, was handed me the other day by our minister here, Hon. George Maney, with the request to answer the same, if I should see fit to do so. The letter is rather old, and I am afraid has, perhaps, lost by this time its interest as regards the enterprise mentioned therein, viz, to endeavor to establish a steamship line from the United States direct to the River Plate, touching at various points. So far as I am concerned, I shall feel only too happy to assist in enlarging our trade relations with the outside world, and, therefore, will gladly answer the questions propounded as well as I can, and give such information as may help the enterprise generally.

I will begin with the endeavor to answer the questions as they are put, with such additions and suggestions on my part as I deem expedient in order to get at the practical business side of them.

Question 1.—How are we to make sales? If through brokers, please give a list of two or three of the more responsible in each line of business. * * * It would also be very important for us to have a full list of responsible merchants in Montevideo.

Sales are made here by salesmen from Europe, and also through brokers who keep on hand a full line of samples of whatever they desire to sell. In a great many instances, stocks of goods are even placed here for immediate delivery to the large trade, such as wines, liquors, jewelry, silver-plated ware, etc. The two last-mentioned articles, as well as others, are sent after sales

* This report was prepared by Consul Schramm in answer to a letter from the Louisville (Ky.) Board of Trade, to whom was sent a copy of the report, with the inclosures mentioned therein.

have been completed to other cities and countries. The most prudent, and, as I think, practical way of introducing American goods here would be to engage an agent in Montevideo and to send him either a full sample of the articles to be introduced, or such assortment as would suit the trade, thereby meeting the competition from other countries on the same basis. The man so engaged would have to be thoroughly acquainted with the way of doing business here, and therefore it would not be advisable to have him come from the United States.

The compensation might either be by commission or fixed salary, or part commission and part salary.

A building would have to be rented in which to keep and exhibit all samples sent. This would naturally involve the expenditure of money that would have to be guarantied by some one, and, therefore, a certain outlay of the parties desiring to introduce the goods would be required. That this can not be done on the same plan as it is done in the United States, through merchant brokers who assume their own expenses and are compensated by a certain rate of commission on the sales made, is apparent.

A provision for current expenses, such as is made when traveling salesmen are sent out in the United States, must be secured, with the view to determining whether the goods would suit the trade here, after merchants have been given the opportunity of examining the same by samples.

To give a list of the responsible merchants here would be useless at this time, as it would be also to name brokers, who, perhaps, would be suitable to take hold of the matter. Should the Board of Trade conclude to avail itself of the suggestions made by me, I would be able, in ample time, to supply it with all it would wish to know in that direction.

In my opinion, the trade of South America is as desirable and fully as safe as any other that the United States now has.

Question 2.—What credits are allowed and on what terms? Also, that I shall give names of banks and state how settlements are made.

The answer will depend upon the agreements upon which the goods are sold. The custom here is to sell goods on long terms. The reason for this, to a great extent, is to be found in the long distances, and therefore the time that it takes to land goods here. In connection herewith, I may mention that our lack of steamship facilities to this country has perhaps a great deal to do with our not being able to cope successfully with European competitors. Six months, I am informed, is generally the time upon which the basis of settlements is fixed. It certainly must be profitable to the parties selling the goods, as otherwise a shorter period would have been adopted.

I think it better to send a city directory of merchants and banks of Montevideo at once than to attempt to make a list. I wish only to state that the banks are all foreign and have large capital at their disposal. My opinion is that an American banking institution is more needed than anything else to begin with, as no American exchange is to be had direct, and all payments in settlement of American business go through English banks,

the rates of exchange varying and being very high. The rate is now 4½ per cent to the United States.

Question 3.—What lines of manufacture can be introduced successfully?

Numerous lines of goods can be introduced if they are properly handled, and if patience and indulgence, as well as attention to the wants of this country, are given by our merchants and manufacturers. The greatest trouble the American trade meets here is that the American merchant and manufacturer do not seem to care to capture and hold a trade that would prove most valuable to them and to the entire country. Apparently, they prefer to make all they can the moment they conclude to enter this market, and for this reason they do not cater to the wants of the country, but expect the merchants here to buy the goods as they make them or such as they have on hand. In other words, the American merchant wants to reap immediately, without sowing and waiting for the crop to grow and ripen, where the European markets have for generations past planted seeds, the fruits of which they are reaping now.

Annexed, I give a list of articles which I think could be introduced successfully in competition with the rest of the world, provided concessions be obtained from South American countries in the way of free entrance of samples, etc., and aid is given to establish prompt shipping facilities by means of lines of vessels running at regular times from the United States direct to the South American ports.

Montevideo is the headquarters for the South Atlantic naval squadron of the United States. At the present time, there are four men-of-war lying here—the *Charleston*, *Newark*, *Alliance*, and *Yantic*—each of them using large quantities of coal. Coal costs, delivered alongside in lighters, $9.50 per ton. All the coal used in South America by our men-of-war, as I am informed, is sold to them from England. England has a monopoly in the sale of coal all over South America, it seems, and our entire fleet is therefore more or less dependent on England for fuel. The coal depots are in the hands of English merchants. They ask what they please, and whenever anyone from another country tries to go into the same line of business they commence cutting prices until competitors are driven off. Some years ago, a French syndicate tried to establish a coal depot here. They furnished coal from the beginning at a lower rate, saying that they were making money at it; but the combination, it is claimed, ran coal down to $4 per ton, so that it was impossible for the French company to continue, and they were forced to sell out. I do not know at what price coal could be delivered here from the United States, but am informed at a much lower price than $9.50 per ton alongside the ships needing it. It therefore suggests itself to me, that if the United States Government would establish a fixed price for coal at the various ports in South America, and oblige its navy to buy only American coal from American firms, it would give an impulse to the American coal trade, make the American navy independent of England's coal monopoly in these regions, and furnish freight to a regular

line of ships running to South American ports, which, in time, might obtain sufficiently large quantities of other freights through regular channels of mercantile business.

As things are now, the general complaint seems to be that a steamship line from the United States to South America does not pay on account of not having enough freight to ship from the United States to these ports at regular intervals.

Question 4.—What are the principal exports from Montevideo, and to what country are they chiefly shipped, etc.?

Wool, hides, bones, horns, wheat, hair, etc., are the principal articles of export. They are shipped to Europe. A very small quantity of hides and bones are shipped to the United States.

Question 5.—What prices obtain in each line of business, and what lines of goods can be sold to advantage?

It would be going too much into detail to give prices of articles, as I would have to explain each separately, in order to make an intelligent statement of the articles in use here and the prices paid in Europe and in this market. Besides, the appended list will give as much information as I can furnish as to such articles as may be exported to River Plate countries with some slight prospect of success if properly handled.

Question 6.—What duties, if any, are charged on the various commodities imported to or exported from Montevideo?

Uruguay lives on duties altogether, and therefore they are not only high, but very high in most lines.

Uruguay is very rich and has abundant resources to warrant a good and safe trade, the proof of which can be found in the fact that European merchants are watching with the greatest interest the endeavor of the American merchants to establish themselves here. I am not speaking of Uruguay alone, but of the Argentine Republic, Brazil, Paraguay, and, perhaps, other South American countries.

The natives seem to be very friendly with our people, and it is a question only of how to get them out of the hands of English and other European merchants to enable us to capture a trade which naturally belongs to us and with results which they conceive would be for their benefit if they could make the change. I shall be glad to advise as to parties who might prove suitable to act for American firms here.

Lastly, I desire to call attention to one more factor of trade—the press. In this country, as well as everywhere in the world, advertising is one of the stepping-stones of trade.

The following is a list of articles which I think could be exported from the United States with some show of success and in competition with European exportations to this country, providing proper attention be paid by our merchants and manufacturers to styles and demands of this country, and if

agreements are made for reductions of tariff rates and the free entrance of samples:

Farming implements. Some American firms have agencies here already.

Hardware and edge tools of all kinds. Some few American goods are sold here, but the sales could be largely increased.

Machinery of all kinds. Before sending samples, it would, of course, have to be determined what kind could be put to use here.

Fence wire (largely European). Smooth black iron is used here yet.

Electric apparatus of all kinds, to suit the occasion and demand.

Sewing machines. Some companies of the United States are represented here already.

Silver-plated ware. Our styles I deem far superior to European.

Watch movements, and, perhaps, cases, would be worth a trial.

Stoves of all kinds. Cooking stoves, for wood, coal, and gasoline, are not used here so far, except in rare cases by foreigners. It would be worth a trial.

Petroleum is imported from the United States already, and forms one of the largest imports into this country from the United States.

Gasoline is not used yet, but with the introduction of stoves would be used.

Paints and colors. There is a small quantity imported from the United States.

Starch is manufactured here, but it is not good. It is imported largely from Europe.

Star candles are imported from Europe. Those manufactured here are not of good quality.

Canned vegetables and fruits.

Cotton goods of all kinds could be sold if manufacturers would pay attention to styles and demands here.

Lamps and gas and electric fixtures, perhaps.

Pine lumber is imported from Florida.

Typewriting machines, perhaps.

Resin is imported already; but sales could be largely increased.

Whisky. All liquors come from Europe, and is very bad stuff generally.

Hams and bacon. These articles are very high. As there are large quantities of hogs in the country, a packing house here would, perhaps, pay well.

Ice machines. Those in use here are old, and not up to modern needs.

An electric battery system for street cars, if successful in the United States, could, perhaps, be made profitable here.

Pianos and organs. European pianos and organs are used here. They are of a cheap style. I think the American articles could be successfully introduced here with proper care.

Billiard and pool tables could, perhaps, be successfully introduced here, as the styles used are old-fashioned.

Furniture is used here in very elegant styles. There is some manufactured here, but it is mostly imported from Europe. I think we could very successfully compete if concessions in the tariff could be obtained. All timber for furniture manufacture is imported.

Carriages, carts, coaches, etc., all come from Europe. I can not see why we should not be able to compete.

Bicycles. Very few bicycles are used. The people are not active enough to use them to any extent, but it might be made a matter of fashion.

Codfish. Some is imported from the United States.

Dentistry goods. The American dentist is the best known here; therefore United States dentistry goods should find here a good market.

Leather, and, perhaps, uppers, for boots and shoes.

Hops and malt, perhaps.

Tobacco in bulk, and, perhaps, some few manufactured kinds.

Tubes of iron and steel and piping for artesian wells, etc.

Wall paper, and also printing paper in reams; rolls are not used, there being no self-feeding presses here. The latter could, perhaps, be introduced successfully.

Typesetting machines, and, perhaps, other articles.

EDGAR SCHRAMM,
Consul.

MONTEVIDEO, *April 5, 1894.*

NORWEGIAN FISHERIES.

Although the official reports have not yet been published, I am able to transmit a reliable statement of the cod and herring fisheries just finished in this consular district.

The cod fishery at Lofoten commenced in the middle of January under promising auspices, but, owing to the continually cold and stormy weather, preventing the fishermen for weeks from working to advantage, the catch at the end of February amounted to only 5,700,000.

Fortunately, however, from the first week of March, the temperature, as well as the weather in general, gradually improved, and on the 15th of April—the regular fixed date for the completion of fishing at Lofoten—the return of the catch here was reported at 27,200,000 fish, 11,600 hectoliters* of cod-liver medicine oil, 18,500 hectoliters of liver for other kinds of oil, and 24,300 hectoliters of spawn.

From the beginning of the season, the fish were of very small size and singularly meager, from 700 to 900 livers being required for producing one barrel of oil against the general proportion of 300 to 500; consequently, the quantity of oil this year will probably be reduced by nearly 50 per cent

*The liquid hectoliter=26.417 gallons and the dry hectoliter=2.838 bushels.

as compared with the preceding year, and prices are advancing in the same proportion.

At the height of the season (the last week of March) 6,280 boats and about 28,000 men were collected at Lofoten, or nearly the same numbers as in 1892 and 1893.

For the other fishing stations, including the south districts of Romsdalen, Söndmore, and the coast of Bergen-Stavenger, the total yield is stated at 11,600,000 fish; 4,474 hectoliters of cod-liver medicine oil, 16,337 hectoliters of livers, and 9,638 hectoliters of spawn.

The total catch to April 15 amounted to 38,800,000 fish, 16,074 hectoliters of cod-liver medicine oil, 16,337 hectoliters of livers, and 33,938 hectoliters of spawn.

According to the last day's telegrams, about 2,000 boats are still fishing at Lofoten, and very likely the above-stated quantity of fish may be increased by 5,000,000 or 6,000,000.

The still unfinished cod fishery at Finmarken, which follows that at Lofoten, has, up to the middle of the month, given a most unsatisfactory result, the fish being of small size, and even more meager than at Lofoten. But the catch itself is still more unfavorable, it having commenced in East Finmarken, an unmistakably bad sign, indicating that the shoals are not visiting the coast of West Finmarken, but turning in the opposite (east) direction to the Russian coast. A regular fishery in these parts always commences at the well-known stations between Hammerfest and the North Cape. Up to April 15, the Finmarken yield amounted to only 1,750,000 fish. When it is finished in May, I will send my report.

The winter's herring catch in this neighborhood amounted to only 85,000 barrels, whereof 20,000 barrels were cured for export, and the rest, deducting the considerable quantity held for home consumption, were exported fresh in ice to England, or smoked, principally to the German markets. The fish were large-sized and of the regular so-called "spring herring" kind, but prices were low, averaging not above 5 kroner ($1.34) per barrel, and yielding but a poor profit to the producers.

Statistics of the Lofoten cod fisheries from 1885 to 1894, inclusive.

Years.	Fish.	Livers.	Medicine oil.	Fish roe (spawn).	Number of livers to one hectoliter.
	Number.	*Hectoliters.*	*Hectoliters.*	*Hectoliters.*	
1885	26,250,000	29,200	6,547	32,700	600 to 900
1886	30,500,000	40,500	9,920	34,600	500 to 700
1887	29,500,000	38,000	9,492	29,850	500 to 700
1888	23,000,000	35,100	15,570	38,900	300 to 500
1889	14,500,000	20,200	11,475	19,500	280 to 500
1890	28,000,000	56,350	15,760	36,700	250 to 500
1891	20,600,000	22,500	17,000	19,600	300 to 500
1892	15,000,000	21,800	7,640	17,400	350 to 500
1893	26,300,000	30,400	18,500	31,100	350 to 550
1894	27,200,000	18,500	11,600	24,300	700 to 900

Statistics of the Lofoten cod fisheries from 1885 to 1894, inclusive—Continued.

Years.	Prices.			Number of boats (each 4 and 5 men).
	Fish (per fish).	Liver (per hectoliter).	Fish roe (per hectoliter).	
	*Öre.**	*Kroner.**	*Kroner.**	
1885	12 to 20	14 to 19	12 to 16	1,964
1886	10 to 15	8 to 18	13 to 16	2,257
1887	11 to 15	10 to 14	10 to 18	3,200
1888	15 to 21	8 to 14	14 to 18	6,455
1889	20 to 31	12 to 17	12 to 21	6,535
1890	12 to 22	6 to 10	6 to 10	5,357
1891	23 to 31	11 to 16	8 to 17	2,750
1892	20 to 25	10 to 14	16 to 20	1,980
1893	12 to 21	7 to 11	8 to 16	3,530
1894	18 to 24	12 to 21	20 to 30	3,700

*100 öre=1 krone=26.8 cents.

F. G. GADE,
Consul.

BERGEN, *April 25, 1894.*

COMMERCIAL REPORTS TO EUROPEAN GOVERNMENTS.

I beg to submit a sketch of the innovations which have been made in the consular and commercial branches of the diplomatic services of Great Britain, Belgium, and France during the past ten years. These innovations have been found necessary, owing to the rapid and complete transformation which the commercial world has undergone during the past decade. They have been devised to meet the changed conditions of trade and the closer competition between the powers in the markets of the world.

ENGLAND.

In 1865, the British Foreign Office suffered a bitter experience, as a result of which the advisability of appointing commercial attachés to embassies and legations was first suggested. The British ambassador to Prussia negotiated in that year a commercial treaty with the German Zollverein. The ambassador was not versed in the intricacies of commerce, and there slipped into the treaty a faulty definition of "woolen textures," which, by excluding from the minimum tariff a grade of goods extensively exported to Germany, caused the merchants of Birmingham and Manchester an estimated loss of £2,000,000 annually. When, in 1881, the German Government consented to discuss the negotiation of a new treaty with Great Britain, Lord Odo Russell, at that time British ambassador at Berlin, requested the Foreign Office to place at his orders, in addition to the usual Foreign Office experts and secretaries of embassy, an expert well versed in the varied and extensive commercial relations of the two countries. The Foreign Office, in answer to this request, being most anxious to avoid a recurrence of the wool in-

cident, requested Mr. Joseph Crowe, at that time Her Majesty's consul-general at Leipsic, to proceed to Berlin and assist Lord Russell in the negotiations. On the arrival of Mr. Crowe at Berlin, however, the German Government, basing their objections on the fact that Mr. Crowe did not hold diplomatic rank, stated that they could not recognize him or permit him to actively participate in the negotiations. The British Foreign Office removed this difficulty by appointing Mr. Crowe commercial attaché to the legation in Berlin, with diplomatic rank, and, thanks to his special knowledge, the treaty negotiations were concluded in a manner satisfactory to the manufacturing and commercial interests of the United Kingdom.

In 1883, when Lord Lyons was negotiating a commercial treaty with France, Mr. Crowe was transferred to Paris as commercial attaché, and has remained there ever since. In 1889, Her Majesty recognized the services he had rendered the commercial interests of the Empire by bestowing knighthood upon him. About this time, Mr. Law, a member of the British consular service, was appointed commercial attaché to the embassy in Russia.

There are no other commercial attachés in the British diplomatic service, which may seem strange in view of the fact, admitted on all sides, that these gentlemen have rendered exceptional services. The appointment of at least one commercial attaché to every important British legation has been proposed in the House of Commons a dozen times in the last ten years, and in theory at least, the suggestion has always been approved by the Government of the day, whether Conservative or Liberal. The proposition has never failed of strong support in the press and in the commercial corporations of the Empire. Nevertheless, these commercial attachés have not as yet been appointed. On several occasions, Sir Joseph Crowe has been requested to draw up a scheme upon which to start this new branch of the diplomatic service, and his scheme has always been approved, with the exception of the proposed remuneration of the attachés. He has proposed that these attachés be chosen from among the members of the consular service whose reports and services in their present positions have proven most valuable. He proposed (the last scheme was drawn up for Lord Salisbury in the summer of 1892) that they should be paid £1,000 per annum, with a small annual increase, and with the same pension advantages that they would enjoy if they had remained in the consular branch. Lord Salisbury reduced the remuneration to £500 per annum, and on this account, Sir Joseph Crowe refused to indorse the scheme, and the whole proposition has, for the present, been dropped.

Sir Joseph Crowe has told me that he is of the opinion that men who would accept the remuneration of £500 per annum would either be inefficient or that, in a very short time, if they displayed the qualities he deems it indispensable for a commercial attaché to have, they would leave the service for more lucrative positions. By special arrangement with the Foreign Office, Sir Joseph Crowe is at present in receipt of £1,500 ($7,299) per annum. The Russian attaché, Mr. Law, receives £1,200 ($5,839) per annum.

The commercial attachés I have mentioned, and, indeed, all secretaries of legation who are pursuing the diplomatic career as a profession and not as a pastime, make reports very frequently on commercial and trade matters to the commercial department of the Foreign Office, which is under the direction of Mr. S. M. Kennedy, C. B. These dispatches are very informal in their character, short and concise, and as condensed as possible. When the information they contain is of sufficient importance to British trade and commerce to warrant the expense, these dispatches are transmitted by telegraph. More frequent communication of the consuls with the commercial department of the Foreign Office is one of the results of an investigation of the service made by Mr. Bryce in 1886.

This change at first met with not a little opposition from the British consuls, who, owing to the vast ramifications of British shipping and commercial interests, are certainly a hard-worked body of men, and especially when their posts are situated in maritime cities. In view of these facts, the Foreign Office has not laid down any hard and fast rules as to how often such consuls should make these informal reports. The matter is left almost entirely to the discretion of the individual consul, it having been noticed, however, that those whose reports are viewed with favor by the commercial department receive very rapid promotion. The consuls, as a general thing, are beginning to take a great deal of interest and trouble with their informal reports, the preparation of which, several years ago, they regarded as an imposition upon their good nature and in defiance of all the traditions of the service.

Sir Joseph Crowe is of the opinion, and has so informed me, that the complaints that have been made by British consuls of the extra labor which the preparation of these informal reports imposes upon them are quite groundless. He says:

> For the contingency that they should not be published, I have all my informal notes and reports on commercial subjects copied before they are sent. When I come to write my quarterly or semiannual report, all I have to do is to boil down the memoranda. If a consul is an efficient consul and is doing his whole duty, this demand for frequent short reports should not occasion him any extra labor whatever. If his reports on the trade of the country in which he is serving are to be worth anything at all, he must from day to day put down memoranda of his observations on trade and commerce. All the Foreign Office asks is that consuls immediately send these memoranda to England. It is not asked that they be couched in chosen phrases—all that is wanted is plain English.

These reports, when received at the Foreign Office, are examined and made public in different ways. Very important information is given out immediately by Mr. Kennedy, the chief of the commercial department, to the National Press Association of England and to the Central News of Great Britain. By these news agencies, the information from the Foreign Office is published in almost every newspaper in the United Kingdom on the morning following its distribution. On several occasions, the news agencies have shown a disinclination to telegraph at considerable expense rather dull information only interesting to a few. But as they have always found that

the Foreign Office would retaliate by keeping from them news they were desirous of obtaining, say news of general political interest, the news agencies have had to succumb, and in the manner I have indicated, they circulate with great rapidity the gist of the information contained in the informal reports of consuls and secretaries of legation. Information of a less important character is published in the Board of Trade Journal, or, perhaps, in a pamphlet of the Foreign Office reports, miscellaneous series. The annual series (Foreign Office) is quite distinct from the foregoing, and corresponds to our annual consular reports.

I have, at some length, described the reasons why, as yet, though all parties recognize their utility, the British Foreign Office has not appointed a regular corps of commercial attachés of legation. Another reason for this delay, and perhaps the most potent in bringing it about, is that the great English families, Whig as well as Tory, object very much to the appointment of a man of trade as an attaché of embassy where his official standing gives him the unrestricted entrée into the circle of county families that cluster around every British legation. Where these commercial attachés have been appointed, the chiefs of embassy have had to recognize them and their wives socially; otherwise, the country to which they are accredited would also ignore them socially, and the purpose of their appointment would be frustrated. The families, both Whig and Tory, who, in turn, exert a preponderating influence upon the appointments of the Foreign Office, are, as I have said, united in opposing this innovation.

BELGIUM.

Belgium, with its great manufacturing and industrial wealth, and its small agricultural importance, saw perhaps earlier than any other European state the necessity of placing within the reach of the merchants and manufacturers of the Kingdom more extensive and fresher information as to what is going on in other emporiums of commerce than could be supplied by the old system of annual or semiannual reports by consular agents. Anyone conversant with the preliminary training and education of the Belgian consular officer, or anyone who has read the Recueil Consulaire, in which are published their reports, will admit that they are a very superior body of men.

In 1879, the great industrial crisis which swept through Europe completely disarranged the well-accustomed channels through which was carried on Belgium's export trade. At this juncture, Mr. Frere-Orban, the Prime Minister, by ministerial circular, ordered a general examination and investigation of the consular system for the purpose of devising a scheme by which it might be made a more powerful instrument for facilitating and extending the commercial relations of the country. In this investigation, carried on by the Ministry of Foreign Affairs, the most prominent merchants and manufacturers of the country and the most experienced members of the consular service were consulted. The first result of this investigation was the founding

of a commercial museum in Brussels, at the expense of the Government, with the twofold purpose of exhibiting Belgian manufactures, samples of goods that could be successfully sold in foreign countries, and also to show foreign buyers what articles suitable for exportation could be produced in Belgium. The museum was at once successful, and many other smaller museums were immediately founded in other towns of Belgium. The first expenses were borne by the Government, generally supplemented by liberal subsidies from the municipal authorities. By a system of small fees, and through presents from wealthy merchants, these museums have proven a great benefit to the commerce of the country, and are almost entirely self-supporting. Last year, they cost the Government only 10,000 francs. The Government presented the Brussels museum with the most complete library of commercial and technical knowledge that exists in the world. Commercial, manufacturing, and trade papers were subscribed for and placed on file; also a list of all tariff regulations and changes and custom-house bulletins were displayed and made easily accessible. The consular officers of the Government were instructed to send to this museum copies of every custom-house decision that was made in the country where they were serving, whether it affected Belgian goods directly or not. The Belgian consular agents throughout the world were then instructed to send specimens of every article imported or manufactured and on successful sale in the countries where they were serving; to attach to this article a statement of the wholesale and the retail price, and a statement of the place where it was manufactured or consumed, and the current rates of transportation from the country in question to Belgium, or from Belgium there. It was found that in this way, after examining the article in the museum, the Belgian merchant would at a glance be able to estimate pretty closely whether he could manufacture the same article in Belgium and place it on the foreign market at an expense which would permit him to undersell his competitors. It also was found that the museum gave the merchant interested in the importing trade very full data to judge whether it would prove advantageous to him to purchase the line of goods in which he dealt in some foreign country, transport them, and place them on the Belgian market. But, perhaps, the greatest advantage that has been found to accrue for the Belgian commercial world in the founding of these museums is the fact that an examination of them furnishes him with complete and early knowledge of all changes in commercial fashions throughout the world, and apprises him of any successful enterprise that may have been undertaken by his English, French, or German competitors. For instance, we will suppose that a Manchester firm has turned out a new line of cloth goods and sent them to Brazil, where they have met with large and profitable sale. The Belgian consul obtains a sample of this new line of goods and sends it immediately to the museum, with full data as to the import duties, transportation rates, and commissions of agents. The Belgian merchant is then in a position to judge whether he can produce the same article and successfully compete in this new field. As

new countries enter upon the growing of cotton and other textile plants and other articles which are needed by the people or the factories of Belgium, the Belgian consul sends samples of the product to the museum with full data; and the manufacturer or merchant is in a position to judge whether it would be advisable for him to avail himself of this new field in making his purchases of raw material.

In addition to the commercial library, there is in the museum a bureau of information, which is found to be of inestimable value. Here are compiled and indexed and made easily and speedily accessible all current and past information on any commercial or manufacturing subject which can be desired. On the payment of a small fee, the merchant finds himself in possession of all possible information on the subject in which he is interested, and, in a few minutes, he is able to benefit by the information and statistics which it has taken experts many years to collect.

Samples received in the museum of Brussels, that do not admit of being divided up, after they have been exhibited in Brussels for a few weeks, are sent around to the provincial museums in turn.

As a substitute for the old system of the publication of antiquated consular reports, resulting from the investigation under Mr. Frere-Orban, a journal was founded, called the Bulletin du Musée Commercial, which has been published weekly ever since. It costs in Belgium 5 francs a year. It contains twenty-two pages of information weekly, and by its large circulation and by advertisements, even though printed at so small a price, it is a source of revenue to the museum.

Another innovation has been made, dating back some three years, in the Belgian consular service, which has been found to exert a beneficial effect upon trade. The consular service is divided into departments, under the orders of consuls-general and consuls. It was found that the consuls-general were so fully occupied with the routine work of their offices and departments that they had little or no time for special observation and reports. Under these circumstances, the Belgian Government placed under the orders of every consul-general presiding over a consular department two paid consular officers, to be known as traveling consuls, under orders from their department chiefs. Their function is to travel through the country and make reports on trade which may prove advantageous to Belgian commerce and industry. These consular officers are chosen from among their colleagues for their special competence in such matters. But if, at any time, the Belgian Government or the consul-general should deem it advisable to obtain full and special information upon a certain branch of trade, and if he should think or know of any one outside of the service more competent to furnish this report, he has the authority to appoint this person as a temporary consular agent, and funds are at his disposal for the payment of the expenses incurred. It has been found by the Belgian Government that these reports are much more valuable than a piecemeal report made by half a dozen or a dozen consuls in regard to the state of the particular branch of trade under

investigation in the locality in which they are serving. It is found, in the first place, that they have the weight and value of having been written by an individual chosen for his peculiar fitness to deal with the subject, and, in the second place, that, inasmuch as he has visited each and every one of the centers of trade in question, his report has the value of a comparative study.

In Belgium, all consular reports are published, in so far as they are of interest, immediately on their receipt at the Foreign Office by the weekly journal known as the Bulletin du Musée Commercial.

It is further provided, that every secretary of a Belgian legation must write at least two commercial reports every year and submit them to the Foreign Office. The subject of these reports is generally arranged between the minister of the legation and the Foreign Office. In case there is no special subject upon which the Foreign Office is particularly desirous of having a report, the secretary of legation is allowed to choose his subject. Should the secretary of legation fail to make these reports, or should they not be found satisfactory, he is often requested to resign.

In Belgium, also, it has been proposed to appoint commercial attachés of legation, but at present, it is thought that the traveling consuls fulfill the mission of the commercial attaché in a satisfactory manner.

FRANCE.

In France, I understand, the question of appointing a large number of commercial attachés of legation has, on more than one occasion, been brought to the attention of the Government by distinguished members of the Chamber, especially by M. Ribot. When this gentleman was last Minister for Foreign Affairs, he included an item in the Foreign Office budget providing an appropriation for the purpose of suitably paying such attachés; but before this budget came to a vote, the ministry fell and M. Ribot's successor did not include the item in his budget.

Up to the present time, in the French diplomatic service, there are no commercial attachés of legation, properly so called. Every secretary of legation, however, is called upon to write at least two commercial reports yearly.

During the last ten years, France, following the example of Belgium, has taken up very strongly the idea of commercial museums, and there are now fifteen of these institutions in the principal manufacturing and commercial centers of France. I have it on the authority of Sir Joseph Crowe and M. Jules Roche, ex-Minister of Commerce, that these museums are to be regarded as an unqualified success.

The French consular reports, at least in the expeditious way in which the information which the consuls gather is placed within reach of the public and commercial bodies most interested, are certainly most admirable. The French consul, in addition to his annual reports, is expected to, and does, supply the Foreign Office with an informal report on current trade matters at least once a fortnight. These reports are immediately sent by the

Foreign Office to the Ministry of Commerce, and if, on inspection, they prove interesting and of value, they are published in the weekly publication known as the Moniteur Official du Commerce, which has an extensive circulation both in France and elsewhere.

It will, I think, prove interesting to know that the publication of the Bulletin Consulaire Français, in which the annual consular reports were issued in monthly parts, has within the last ten months been discontinued. The reasons given for this step were that these reports did not interest that portion of the public for whose information they were particularly prepared, at a very heavy expense. It was found that consuls, in the preparation of these voluminous reports, were generally compelled to await the publication of the statistics in the countries in which they were serving, and that, as a consequence, their reports on one year were not, as a rule, received in France and ready for publication until the end of the following year, by which time they were useful only to commercial statisticians. In view, then, of the great cost of these publications, the French Ministry for Foreign Affairs decided to stop publishing them. The space in a weekly publication like the Moniteur du Commerce being limited, it was decided that whenever a report of particular interest was received from a consular officer, it should be published immediately in the form of an *annexe* or supplement to the Moniteur.

STEPHEN BONSAL,
Secretary of Legation.

MADRID, *July 15, 1893.*

GERMAN CONSULS AND GERMAN TRADE.

The ceaseless efforts of the representatives of the German industries to open up new fields for the sale of their products appear to have received special encouragement and support on the part of the German Government since the holding of the World's Columbian Exposition. In connection with this fact, it is interesting to learn that the German consular officers in foreign countries are devoting themselves to advancing the interests of German industries by employing a novel, but thoroughly practical, method of securing additional sources of demand for German articles of manufacture. I have learned, through the medium of German publications, that, through the German consuls in the United States, agencies have been established in nearly all the important centers, in charge of persons conversant with English and German and thoroughly supplied with information relating to the exporting industries of their country.

At these bureaus, that might be denominated "industrial agencies," interested parties can obtain information and advice regarding German sources of supply and the relative condition of market prices, freight rates, and tariff duties, so that, benefiting by this, even the importer of smaller quantities will, in future, be able to order wares from Germany at first hand.

Whether these agents thus appointed by the German consular officers are supplied with books containing information about the various branches of German industries and indicating definitely the manufacturing firm, with its respective locality and price quotations, is at present unknown to me, but it may reasonably be assumed that such is the case. It is obvious, however, that such bureaus of information, if intrusted to the direction of the right persons, will, in time, prove to be of inestimable value to parties interested.

The otherwise wide-awake representatives of our American industries could—as has often been urged in consular reports—profit by the example of their German colleagues. How often is the observation made in foreign countries that certain products of American industries well adapted for export are not even known in those countries. Only a short time ago, the owner of a large shoe factory at this place appeared in the local United States consular office with a copy of a trade paper published in New York, which had very probably, I think, been sent to him through accident. He requested me to translate various advertisements in which different articles of American origin used in manufacturing shoes were offered to the trade. Since then I have learned that this manufacturer, shortly thereafter, sent two trial orders for some of the articles advertised to the United States. This apparently unimportant incident serves to demonstrate clearly enough that it is high time our American manufacturers began to extend to foreign countries the spirit of enterprise they show in their home trade, and thus open up new territory to supply in those countries, whose tariff provisions permit the importation of foreign goods, either by advertising, sending out traveling representatives, or appointing agents in the important centers of such countries. Consular officers who understand the full import of their official position will gladly aid in furthering this desirable innovation. In order that this may be accomplished, these officers, who, in the majority of cases, are not able to obtain sufficient detailed information concerning the various industrial branches, should be kept posted by the industries requiring their aid. The chambers of commerce of the important trade centers would do well to transmit their publications to the consular officers, and the official journals of the different industries, copies of which are rarely and irregularly sent to consulates, should likewise be placed at the disposal of the latter. There are, to my own personal knowledge, many branches of industry in the United States the products of which could perhaps successfully sustain a competition with those of other nations, but up to the present time no effort has been made to send these wares to the foreign market. The consular officer, under existing conditions, can not undertake to assume the initiative in discovering new and profitable fields for business enterprise, because he is not generally in possession of the requisite information regarding firms and the localities where the various wares are manufactured.

LOUIS STERN,
Commercial Agent.

BAMBERG, *May 2, 1894.*

COMMERCE OF CHINA IN 1893.

The customs returns of trade report rather unfavorably upon the trade of China for 1893. The decrease in the sterling value of the tael,* which dropped in Shanghai during the year from 3*s.* 10⅞*d.* to 3*s.* 2*d.*, and has since gone much lower, demoralized all commerce. The anticipations of those who predicted that cheap silver would stimulate exports have been disappointed because its instability prevented merchants from entering into contracts. The appreciation of gold, on the other hand, ruined the import trade.

The effect of these disturbing conditions is well shown in the customs revenue. The collection for 1893 was 21,989,300 Haikwan taels, or 699,754 Haikwan taels less than during 1892. This falling off was chiefly in opium dues, transit duties, and duties on imports. There was a slight counterbalancing gain in export duties of 14,337 taels, and in tonnage dues of 19,510 taels.

IMPORTS.

The first feature of the import trade for 1893 which strikes our attention is the enormous decrease in the quantity of opium imported from India. The attempt of the Indian Government to protect the rupee so enhanced the price of Indian opium on the Chinese market as to place it beyond the reach of a vast number of consumers. The result was a decreased importation of 2,674 piculs.†

Indian yarn, for the same reason, experienced a severe check, the quantity having receded from 1,254,400 piculs in 1892 to 937,800 piculs in 1893, a decrease of 316,000 piculs.

The kerosene-oil trade continues to increase by gigantic strides. In 1893, there were imported 9,473,000 gallons of oil more than in 1892, of which increase 4,836,000 gallons was American and 4,637,000 gallons Russian oil. To give some idea of the dimensions of the oil trade, I quote the statistics for 1892 and 1893:

Description.	1892.		1893.	
	Quantity.	Value.	Quantity.	Value.
	Gallons.	*Taels.*	*Gallons.*	*Taels.*
American	31,884,013	3,330,116	36,720,382	4,086,661
Russian	8,649,318	872,795	13,286,198	1,484,534
Total	40,533,331	4,202,911	50,006,580	5,571,195

Large as these figures are, the oil trade of China is yet in its infancy. There are vast districts in which the use of kerosene is unknown, but in

* The Haikwan tael is equivalent to 96 cents (American gold) at the average sight exchange on New York for 1893.

† 1 picul=133⅓ pounds.

which it is sure to gradually make its way. The Russian oil is being pushed with great energy. Tanks have been built at Shanghai, and tank steamers are to ply regularly between Batoum and the East. The first shipment arrived during the month of March, and was safely transferred from the vessel to the tanks. There was some official objection to the landing of the oil, but that was overcome, and a vast expansion of the trade will doubtless follow upon its cheapening on the Chinese market.

Textile fabrics from all gold-currency countries disclose a great falling off. The price of gray shirtings, for instance, on the Shanghai market increased 36 per cent over 1892, and there was a consequent decrease of importation of 2,158,000 pieces. Nearly all English and American cotton goods were imported in decreased quantities, while it is noticeable that Japanese cotton goods have made immense advances, showing a rise in value over 1892 of 660,400 taels.

Looked at as a whole, the most striking feature of the import trade of China for 1893 is the part which the depreciation of silver played therein. The tael, or ounce, of silver has remained of undiminished purchasing power in the East in the face of a great fall in value as compared with gold. The natural consequence has been that Chinese buyers have increased their purchases in Asiatic markets where silver retained its former value, and have decreased their purchases where exchange went against them. It requires no great foresight to see what influence this is going to have in the establishment in this country of factories for the production of many articles hitherto imported from abroad. This tendency is already marked in cotton. Native capitalists are not slow to see that cheap, silver-paid, skilled Chinese labor can turn out cotton here at prices ruinous to foreign manufacturers in gold-currency countries who pay high wages. Indications are not wanting that the Chinese laborer, though not admitted in person in foreign countries, may remain at home and yet make his competition severely felt. No more profitable field for the investment of foreign capital could be found than the establishment of cotton mills in China, did not official interference render that, as yet, impossible.

EXPORTS.

The value of exports from China shows an increase of 14,048,000 Haikwan taels. This increase is made up of tea and silk, and in both these staples it is explained by the fact that exchange has favored exports.

The anticipated repeal of the duty on wool in the United States is reported to account for a large decrease in the exportation of that article. The wool trade between China and the United States has reached great proportions. In 1892, China shipped to the United States 173,400 piculs of wool. These figures were, however, reduced to 130,000 piculs in 1893, of the value of over 1,300,000 Haikwan taels.

The total value of the trade between China and the United States for 1893, compared with 1892, was as follows:

Year.	Imports.	Exports.
	Haikwan taels.	*Haikwan taels.*
1893	5,443,569	11,725,644
1892	6,061,900	10,784,655

The total trade between the two countries shows a gain over 1892 of 322,658 Haikwan taels, which gain was in exports from China. Chinese exports to the United States increased by 940,989 Haikwan taels, and imports from the United States decreased by over 600,000 taels.

SHIPPING.

The shipping statistics for 1893 show that England maintains her supremacy, having more than two-thirds of the total tonnage of the trade with China. English vessels to the number of 19,365, having an aggregate tonnage of 19,203,978 tons, entered and cleared in 1893. China came next, with 6,572,418 tons, counting vessels of foreign type only; Germany third, with 1,508,015 tons, Japan fourth, and Austria fifth. The United States rank tenth on the list, having 63 vessels entered and cleared, with a tonnage of 78,175 tons.

POPULATION.

The total foreign population of China is stated to be 9,891, of whom 4,163 are British. The American residents in China are next in number, being 1,336. The number of American firms doing business here is, however, only thirty, sufficiently showing that it is chiefly in the missionary ranks that Americans are found. The customs estimate is probably below the mark, as many American missionaries reside in remote localities beyond the reach of a customs census.

CHAS. DENBY, JR.,
Chargé d'Affaires ad interim.

PEKING, *April 26, 1894.*

DEARTH OF AMERICAN FIRMS IN CHINA.

The disappearance in 1891 of the renowned and historic house of Russell & Co. marked the extinction in China of the last of the great representative American firms, of which, twenty years ago, there existed at least a dozen. In reviewing reports on China made by our consuls during the past thirteen years, the name of Russell & Co., is of frequent occurrence, which fact strongly indicates that this firm was a zealous guardian of American interests, and a valuable ally to our consuls.

There are, it is true, at present several firms in China controlled by citizens of the United States, and a number of agents representing American

enterprises, but not one can be classed as representative, in the sense that the firm of Russell & Co. was representative. As shippers, bankers, and commission merchants, Russell & Co.'s name appeared in the "Hong lists," or directories, of all the important treaty ports in China. The disappearance of this old, well-known firm must have caused, to a certain degree, an adverse effect upon our trade with China, and its extended business has fallen, as in the nature of a legacy, to the British, German, and French firms in China. It is but natural that these firms should care little about keeping up imports into China from the United States, except as American goods are forced upon their notice by their correspondents in the United States. It is also obvious that British, German, and French firms will take this opportunity to supplant American goods by goods from their respective countries.

By giving this brief notice a place in the CONSULAR REPORTS, it may serve to call the attention of our merchants interested in exports to China to a state of affairs detrimental to them, and to stimulate some of them in the direction of more active representation in this country.

SHERIDAN P. READ,
Consul.

TIEN-TSIN, *May 3, 1894.*

FOREIGNERS IN VENEZUELA.

I transmit herewith a decree issued to-day with reference to foreigners who may come to Venezuela.

R. M. BARTLEMAN,
Secretary of Legation.

CARACAS, *May 14, 1894.*

[Translation.]

ARTICLE 1. Foreigners who may come to Venezuela shall present to the chief of the custom-house of the respective port a documentary declaration that shall state (*a*) their full names and those of their parents, (*b*) their nationality, (*c*) the place and date of their birth, (*d*) their last place of residence, (*e*) their profession and manner of living, and (*f*) the names, ages, and nationality of their wives and minor children, if accompanied by them.

ART. 2. The chiefs of custom-houses will make known by telegraph to the National Executive the contents of said declarations, or that none have been presented.

ART. 3. In case they shall be without said documents, foreigners may ask for them on the testimony of persons who know them and who are trustworthy.

ART. 4. Foreigners who have already entered the country during the past six months shall present the declaration asked for, if in the federal district, to the governor of the same; and if they have gone to other places, those who reside in the capitals shall present their declarations to the presidents of the States, while those who reside in other localities shall present them to the local authorities.

ART. 5. In the cases mentioned in the previous article, the governor of the federal district or the president of the respective State shall inform the National Executive of the result,

in accordance with articles 2 and 3, in order that it may determine whether the foreigners who have made unsatisfactory declarations, or have not been able or were unwilling to comply with the required formalities, are to be considered prejudicial or proper subjects for expulsion.

ART. 6. Consuls of the Republic will publish this decree at the places where they reside, causing it to be translated in those countries where Spanish is not the language, and they shall send to the Government copies of the papers in which it has been reproduced.

ITALIAN EMIGRATION TO THE UNITED STATES.

"Emigration, in its present proportions," says Bodio, "was unknown to other ages." In past times, religious persecution, wars of conquest, and the fact that there were new countries to subdue and settle, induced large masses to move from one country to another. To-day, emigration is a personal matter; individuals seek their fortunes in other countries, aided by cheap and speedy communication, and impelled by better prospects. It is no loss to Italy if thousands of young and strong men leave their country, for the increase of population is great enough to permit a very much heavier emigration than has heretofore occurred. Italy has, for its area, one of the largest populations in Europe, much larger than France or Germany, and although emigration carries off from 4 to 7 per 1,000, the excess of births over deaths is from 9 to 11 per 1,000.*

In England, the emigration is from 5 to 6 per 1,000, and the excess of births over deaths from 11 to 12 per 1,000. Emigration from Germany has decreased lately, and is now 2½ per 1,000, while the excess of births over deaths is from 12 to 13 per 1,000. Ireland is gradually becoming depopulated from emigration, which amounts to from 11 to 16 per 1,000, while the excess of births over deaths is only from 3 to 5 per 1,000. France has a small emigation—0.14 to 0.6 per 1,000—but the births only slightly exceed the deaths, and in some years, the reverse is the case.

Italy attempted to protect her emigrants from the frauds and impositions of emigration agents and steamship companies by special laws of December 30, 1888, and January 10, 1889. These excellent laws oblige emigration agents to furnish bonds of from 60,000 to 100,000 lire (1 lira=19.3 cents) for observance of the laws. At present, there are 30 agencies, whose bonds amount to 2,320,000 lire, and there are 5,000 subagencies depending on them. By the last returns available, they number 5,172. Eight had given bonds for 100,000 lire each, two for 90,000 lire, seven for 80,000 lire, and thirteen for 60,000 lire.

* The first congress of the Italian Geographical Society at Genoa passed the following resolutions, presented by Comm. Luigi Bodio, director-general of Italian statistics: "(1) That the Italian Government organize a central bureau of information for emigrants as to the conditions of the country where they propose to settle and as to colonization measures there in practice; (2) that the law should require special guaranties for the subagents of emigration; (3) that the Government appoint a special commissioner at each port of arrival in the United States, to act under the orders and in accord with the Italian consul in assisting the immigrants; (4) that a national society be formed to absorb the present excellent societies in the United States and Italy, and, avoiding any political element, assist emigrants at the port of departure, during the voyage, and on arrival."

The courts and special commissioners in each district, consisting of the local prefect, judge, district attorney (*procuratore del re*), and two provincial counselors are empowered to arbitrate on any questions arising as to maltreatment, fraud, or imposition, but, owing perhaps to the ignorance of the emigrants as to their right to the protection of these bodies, there has been little occasion for their services. Thus far there are only two cases on record of appeal to the special commission and twenty-five cases of condemnation through the courts of the emigration companies or their agents.

The province of Salerno (which constitutes this consulate) ranks second in Italy as to its number of emigration agents, and is outnumbered only by Cosenza, which contains 463. In Salerno, these agents are returned by profession as being 16 workmen and 285 without profession or occupation. Emigration agents here include lawyers, hotel-keepers, liquor-sellers, gentlewomen (*gentil donne*), women, and laborers.

The large number of female emigrants, and the fact that so many women are emigration agents, excites inquiry and raises doubts as to the occupations for which so large a number of girls are intended in North and South America, and enough painful facts of the existence of a species of vile white slavery have been brought to light as to cause serious reflection in regard to the ultimate fate of many unprotected girls.

A few years ago the Italian Geographical Society framed excellent laws to aid and benefit emigrants, and if the Italian Government had sustained their action by pecuniary assistance the society would have accomplished much good. But, although not granting practical aid, the Italian Government contributed valuable information on the subject through its excellent consular reports, especially those from the United States.

In this connection, I would call attention to the able reports of Cav. G. P. Riva, consul-general at New York; Cav. Riccardo Motta, at New Orleans; and Cav. Marazzi, at San Francisco, from which I have gleaned the information that follows.

Taking the year 1891 as a fair average example, we find that 66,000 persons emigrated to the United States from Italy.

The people from the Neapolitan provinces usually remain in and about New York, while the Tuscans and Genoese find ready employment as agricultural laborers in Texas and California. Many Lombards work in the coal mines of Illinois and Michigan, and in the gold and silver mines of Colorado, Arizona, and Montana.

The American wages earned by Italians were: For common laborers, from $1.25 to $1.50 per day; for masons, $2 to $4 per day; gardeners, $20 to $40 per month, with board and lodging.

In these reports, Americans are charged with being prejudiced against Italian laborers, because they speak a different language, live together, and do not assimilate with the rest of the population. But I judge that these sentiments exist only among those laborers jealous of the Italians, who are well known to be temperate, hard-working, and generally peaceable. They

often endure much hardship through lack of work in winter, and many find it cheaper to return to Italy and live here on their savings until the warm weather returns. The most favorable and suitable places for Italians, up to the present, have been California, Washington, Oregon, and Nevada.

The Genoese become fishermen or produce and fruit sellers; the Lucchese, wood-cutters, charcoal manufacturers, and olive cultivators; the Piedmontese and Lombards seek the mines, while the men from this part of Italy are generally employed in railway labor and masonry work, in which the Italian workman excels.

Texas appears to be the "Canaan" of Italian emigrants. There, they have colonized and settled permanently on the outskirts of the towns and cities as market gardeners.

Every obstacle to Italian emigration seems to have been put forward by the Federal Government in 1891. I quote from Commendatore Bodio's report:

> Special agents were dispatched to Europe in that year and a special commission was formed at Naples that demanded 14.60 lire ($2.80) for a certificate to each emigrant, which was certified before the consul of the United States. These certificates had to prove that the emigrants were either American citizens or were called by near relations (father, brother, or husband) to the United States, or else were only temporary emigrants. This system did not work, as the term of relation was too elastic, and it became impossible to verify a claimed relationship with unknown persons more than 3,000 miles away. Afterwards, the emigrants were kept on shore several days and inspected by the "commission," at an expense to the steamship companies averaging 1.50 lire (30 cents) per head per day, and a charge of 150 lire ($30) for each day the work was carried on. All these charges ultimately came out of the emigrants' pockets.

Latterly, our Government insists that all emigrants shall be inspected individually, and that their luggage shall be opened and a label affixed, after this operation, marked "inspected." No consul can attend to such work without the assistance of several competent and trustworthy men. As at present carried on, it can not be considered satisfactory to either the consul or our own Government, as the only persons available in assisting seem to be the very emigration agents who have every reason for wishing to facilitate these operations.

After four months' study and investigation on the spot of that part of my district (Salerno) which furnishes the largest number of emigrants of any Italian province, I would add the following suggestions to the form proposed in my report of March 9, and, to avoid a transfer to another person, affix the photograph of the applicant, as is usual in this country for military passes and season tickets. All merchandise has to be accompanied by a certificate of origin from the district in which it is produced or manufactured, and the proposed form seems to me to be of easy execution. By communicating the information required to the Italian emigration agents, they could ascertain that intending emigrants were in a position to satisfy these conditions, and thus prevent the hardships entailed on emigrants who might be turned back after having sold everything to pay their passage money.

Such instances are frequent, and my colleague, Mr. Dean, tells me that it is heartrending to witness the scenes of despair when emigrants are turned back. His reports on this subject are within the cognizance of the Department of State, and his experience is of a more practical nature than my own, which has been confined to studying the character of the population from which our immigrants are derived and the measures employed in bringing them up from their native districts to the Atlantic steamers at Naples.

The Italian Government spends considerable sums in keeping up its schools in certain colonies, but I am not aware that this is the case in the United States. The Italians have two societies in the United States for protecting immigrants, one secular and the other ecclesiastical. The first was founded in 1888 by Mr. Riva, Italian consul-general at New York. In 1891, its receipts and donations amounted to $25,091 and its expenditures in aid, etc., to $18,000, leaving a balance of $7,091. It assisted 17,776 emigrants and was of valuable aid to its countrymen. The other association is a Catholic organization called St. Raphael's Benevolent Society, founded by Monsignor Scalabrini, who also opened a seminary to prepare missionaries for work in the United States. The association is maintained by the subscriptions of active members at $3 a year and coöperative members who pay 25 cents. Archbishop Corrigan, of New York, is president, and is aided by a committee of seven persons. Twenty thousand immigrants have been assisted in one year, 200 children taken care of and sent to their parents, and free lodging given to 72 men and 34 women for several days each. It has restricted means, but is well organized, has an honest, excellent, and efficient administration, and has been of considerable assistance.

The Brazilian Government allowed emigration agents 120 francs for each adult for passage money, and a premium of 100,000 francs to each steamship company that had transported more than 10,000 emigrants a year.

This report owes any value it may possess to the searching studies of Commendatore Bodio, who has just sent me his pamphlet on Italian emigration, printed at Genoa, 1894, and to whom and to Commendatore Stringher, I am indebted for much valuable information, verbal and printed.

HENRY GREENOUGH HUNTINGTON,
Commercial Agent.

CASTELLAMMARE, *March 20, 1894.*

AGRICULTURE IN GREAT BRITAIN.*

The information given in the returns for 1893 of acreage and stock in Great Britain can not be without interest to American agriculturists. The returns now given have been derived from the separate schedules of 520,351 persons occupying more than one acre of land, together with 16,625 statements respecting live stock alone. All these have been carefully condensed.

*See CONSULAR REPORTS No. 161 (February, 1894), p. 382, on "Agriculture in the United Kingdom," by Charles M. Holton, commercial agent at Swansea.

These statements show that of the cultivated land in Great Britain 27,972,000 acres, or 85.7 per cent of the whole, were farmed by tenants, and 4,672,000 acres, or 14.3 per cent, were occupied by owners.

ROUGH PASTURE AND CULTIVATED LANDS.

The extent of land in Great Britain returned in 1893 as under all forms of crops, bare fallow, or grass appears as 32,644,000 acres. Besides this, there is also available for the sustenance of certain forms of live stock, a less easily defined area of mountain and heath land used for grazing, but not reckoned as cultivated. An approximation of this auxiliary surface is about 12,300,000 acres. Three-fourths of this rough pasturage is claimed by the sheep-carrying hill farms of Scotland; the remainder is found in northern English counties and in the mountainous parts of Wales. The woodlands of Great Britain cover 2,695,000 acres, and 13,000 acres are occupied as nursery grounds.

Comparing the returns of technically cultivated land with the previous year, a diminution is shown, in round numbers, of 42,000 acres. The arable land of Great Britain has further declined in the past year by 176,000 acres, while the surface returned as permanent pasture is greater by 134,000 acres. With a further material decline in the grain-growing area, it becomes a recognized fact that on an ever-widening range of the less easily worked or the less productive soils of this country, the use of the plow has, in view of the existing prices, become unprofitable.

DECLINE OF ARABLE LAND.

Tracing backward the retrograde movement referred to, it is seen that the decline of the arable land of Great Britain commenced twenty-one years ago, when prices of grain were much above the present level. The reduction was attributed in 1872–'73 to the increasing cost of agricultural labor and the attraction of the high prices of meat and dairy produce then prevailing. Since that period, with rare exceptions, the record of each successive season has shown less arable land. Compared with 1873, the arable area of 1893 has decreased rather more than 2,000,000 acres, or about 1 acre in 9, the decline of the last year having been the greatest of all. The changes in arable and pasture lands are shown by the following table:

Year.	Arable.	Pasture.	Total.
	Acres.	*Acres.*	*Acres.*
1873	18,187,000	12,916,000	31,103,000
1878	17,943,000	13,911,000	31,854,000
1883	17,320,000	15,065,000	32,385,000
1888	16,938,000	15,746,000	32,684,000
1893	16,151,000	16,493,000	32,644,000

DIMINUTION OF CEREAL AREA.

What has been stated as the diminution of the arable area of Great Britain is practically a diminution of the surface carrying corn.* The surface under corn crops in Great Britain has never been so large as in 1869. Comparing the present corn area with 1873, the decline is 1,800,000 acres.

Although barley is somewhat less freely grown than in 1871–'75, and pease are less by one-third, the loss under these heads has been more than compensated by the extension of the oat crop. The reduction in the area under wheat and beans helps to explain the net withdrawal from arable culture. Wheat now covers little more than half the surface it occupied in Great Britain in 1871–'75, and beans much less than half. The withdrawal of land from the plow is shown only in the returns of England and Wales. The arable surface of Scotland, where little wheat is grown, increased 59,000 acres as compared with 1873. The following percentage table will give a clear idea of the changes referred to:

Description.	1873.	1893.
	Per cent.	*Per cent.*
Pasture	41.5	50.5
Arable	58.5	49.5
Corn	30.4	23.5
Wheat	11.2	5.8

A more detailed exhibit is given of the various acreages of arable land by taking the average proportion of a typical 1,000 acres, when the following table would give the proportions of the various growths:

Crops.	Proportion.	Crops.	Proportion.
Wheat	118	Mangolds	21
Barley	129	Cabbage	10
Oats	196	Vetches	11
Rye	3	Various green crops	7
Beans	15	Hops and small fruits	7
Potatoes	33	Bare fallow	32
Turnips	122		

Wheat.—The average decline of the year 1893 is 14½ per cent, a result ascribable in part to an unfavorable seed time and to the great discouragement encountered by wheat-growers and the remarkably low prices current.

Barley and oats.—Barley shows an increase of 38,000 acres. In oats, the increase has been 174,000 acres. Since 1873, the increased acreage of oats has been nearly 500,000 acres.

Beans and pease.—There has been a very general decline in the acreage of beans, amounting, in the aggregate, to 21 per cent. The acreage in pease has increased 8 per cent.

*The word "corn" is used in this report for all grain except wheat.

Green crops.—There has been a net extension of over 17,000 acres under green crops. Turnips show an increase of 38,000 acres; mangolds a reduced acreage of 14,000; vetches, 23,000; cabbage, rape, etc., an increase of 5,200 acres. Miscellaneous vegetables show an increase of 10 per cent, or about 9,000 acres.

Hay.—Since 1889, the aggregate reduction in hay acreage amounts to 1,147,000 acres, or about 15 per cent, thus greatly limiting the supply of fodder.

Small fruits.—The total acreage in Great Britain, returned as under small fruits, such as strawberries, raspberries, gooseberries, and currants, has increased from 36,724 acres in 1888 to 65,487 acres, or nearly 29,000 acres in five years.

Orchards.—Orchards show an increase from 208,950 acres to 211,664 acres. These are almost exclusively in southern English counties.

Hops.—The area of hop culture shows an advance of 1,305 acres, the entire crop now covering 57,564 acres.

Horses.—Compared with 1890, there appears an increase of horses, approximately, of 30,000. Mares for breeding have increased 2,892, the total number being 69,766. Unbroken horses show an increase from 424,237 last year to 441,894.

Cows.—Cows and heifers show a reduction of 96,000, carrying back the figures to where they stood in 1890. Two-year-old cattle show a reduction of 86,000 head. The total of young stock in Great Britain (2,556,000) is less by 61,000 head than in 1892 and by 125,000 than in 1891, but more than in any earlier years. The averages show a rising tendency.

Years.	Cows and heifers.	2-year olds.	Young stock.	Total.
1873	2,238,000	1,480,000	2,307,000	5,965,000
1878	2,208,000	1,477,000	2,053,000	5,738,000
1883	2,306,000	1,369,000	2,288,000	5,963,000
1888	2,450,000	1,434,000	2,245,000	6,129,000
1893	2,555,000	1,580,000	2,566,000	6,701,000

Sheep.—The number of sheep, compared with 1892, shows a decrease of 1,500,000.

Years.	Sheep.	Lambs.	Total.
1873	18,778,000	10,650,000	29,428,000
1878	18,055,000	10,351,000	28,406,000
1883	15,949,000	9,119,000	25,068,000
1888	15,727,000	9,530,000	25,257,000
1893	17,040,000	10,241,000	27,280,000

The total loss in sheep, of all ages, as compared with 1892, is 1,454,000.

Hogs.—Hogs show a net decline of 24,000 head.

IMPORTS OF LIVE ANIMALS.

Imports of live sheep are insignificant, and pigs have nearly ceased to come to British ports alive. The following table shows the importations in 1872, 1882, and 1892:

Years.	Cattle.	Sheep.	Pigs.	Value.
1872	173,000	810,000	16,000	£4,395,000
1882	344,000	1,124,000	16,000	9,272,000
1892	502,000	79,000	4,000	9,362,000

It is expected that the returns for 1893 will approximate those of 1882.

IMPORTS OF MEAT.

The following table shows the importation of meats in the years 1872, 1882, and 1892:

Years.	Beef.	Mutton.	Bacon, hams, and pork.	All others.	Value.
	Cwts.	*Cwts.*	*Cwts.*	*Cwts.*	
1872	36,000	.....	2,222,000	599,000	£6,141,000
1882	464,000	190,000	3,195,000	800,000	12,510,000
1892	2,080,000	1,700,000	5,495,000	1,225,000	22,056,000

IMPORTS OF DAIRY PRODUCE AND EGGS.

In this branch of imports there is a continual increase, as is shown by the following table:

Years.	Butter and margarine.	Cheese.	Condensed milk.	Eggs.	Value.
	Cwts.	*Cwts.*	*Cwts.*	*Number.*	
1872	1,138,000	1,058,000	.....	531,592,000	£10,823,000
1882	2,170,000	1,695,000	.....	811,922,000	18,486,000
1892	3,488,000	2,233,000	481,000	1,336,730,000	25,820,000

In connection with this exhibit, it is proper to add that the first column of the group includes 1,305,000 cwts. of margarine—1,197,000 cwts. of that quantity coming from Holland. Of butter, Denmark supplies 864,000 cwts.; France, 543,000 cwts.; and Sweden, 229,000 cwts. Under the head of cheese, out of 2,233,000 cwts., 1,039,000 cwts. came from Canada and 818,000 cwts. from the United States. France, Germany, Belgium, and Russia continue to be the largest exporters of eggs to Great Britain.

IMPORTS OF GRAIN.

While the total value of the three groups of animal produce, meats, etc., exceeded £57,000,000, the cereal imports of the year reached a still larger

sum. Looking backward for twenty years, the total grain imports and values may be thus given:

Years.	Wheat.	Flour.	Maize.	Other corn and meal.	Value.
	Tons.	*Tons.*	*Tons.*	*Tons.*	
1872	2,106,000	219,000	1,227,000	1,557,000	£51,229,000
1882	3,212,000	653,000	914,000	1,705,000	63,539,000
1892	3,245,000	1,105,000	1,769,000	1,926,000	58,733,000

The wheat arriving in 1892 seems but little more than in 1882. It comes now more in the shape of flour. In 1872, the head rate of wheat in grain to each person was 148 pounds; in 1882, as much as 204 pounds; and in 1892, only 191 pounds. In flour, however, the excess of 1892 is remarkable, no less than 65 pounds per person being imported, against 42 pounds in 1882 and 15 pounds in 1872.

BARLEY AND OATS IMPORTED.

The barley imports for 1893—coming as before chiefly from the east of Europe (Russia and Turkey together sending four-sevenths of the whole) may be expected to reach the larger figures of 1888. Less than one-half of the maize imported came from the United States, one-fourth from Roumania, and one-eighth from the Argentine Republic. Twenty years ago, the United States furnished more than two-thirds of the entire quantity of maize or Indian corn imported into Great Britain.

SOURCES OF WHEAT IMPORTS.

The United States furnished in 1892 more than half of the wheat in grain, and more than four-fifths of the flour. In 1872, not much above one-fifth of the wheat and only one-sixth of the flour came from that quarter. The sources of supply are indicated by the following table:

Years.	United States.	Russia.	India.	Other countries.	Total.
	Tons.	*Tons.*	*Tons.*	*Tons.*	*Tons.*
1883	2,029,000	673,000	562,000	990,000	4,254,000
1885	1,985,000	604,000	609,000	919,000	4,117,000
1887	2,531,000	278,000	426,000	776,000	4,011,000
1889	1,548,000	1,082,000	461,000	855,000	3,946,000
1890	1,695,000	983,000	456,000	985,000	4,119,000
1891	2,161,000	733,000	651,000	932,000	4,477,000
1892	3,046,000	218,000	625,000	891,000	4,780,000

For the year 1893, the American quota will be less, and the Indian much less; the Russian will show an increase, and the Argentine Republic will take a third place.

FEEDING STUFFS IMPORTED.

The year 1892 showed an importation of 208,532 tons of linseed cake, 90,130 tons of cotton-seed cake, and 13,210 of other descriptions. The imports for 1893 will not be quite so large.

JAMES A. REID,
Commercial Agent.

DUNFERMLINE, *April 13, 1894.*

COMMERCE OF SOUTH AFRICA.

This consular jurisdiction (Cape Town), so far as the appointment of agents and the supervision of agencies are concerned, covers four states, viz: East London, Port Elizabeth, and Simonstown, in Cape Colony; Bloemfontein, in the Orange Free State; Johannesberg, in the South African Republic; and Durban, in Natal. All of these are important and growing places.

During the year 1893, about 1,500,000 gallons of paraffin were imported from the United States, as shown by the report of the collector of customs, inclosed herewith. Wheat and wheat flour come here from the United States in large quantities, also lumber,* carriage and furniture leather, etc.

The diamond output of this colony amounts to about $20,000,000 annually, five-eighths of which goes to the United States. The output of gold from this district now amounts to more than $25,000,000 annually, and the mines are just beginning to be developed, as per my report of April 11, 1894.†

This consular district extends about 2,000 miles to the north and comprises the entire southern and eastern coasts of Africa. Americans are numerous in all walks of life, and especially so in the mining fields. The number of our citizens constantly coming here is large.

There is a line of direct steamers from New York to this port (Norton & Sons, New York agents), and they are all crowded with American goods. The reduction of the wool tariff will largely increase the shipping business between the United States and South Africa, as wool is extensively exported.

The importance attached to this trade center (Cape Town) by the European governments may be illustrated by the positions assigned to their consular representatives here. The German Government pays its consul-general at this port $6,000 per annum; France, $4,500; Portugal, $4,000; while the United States consul receives $1,500, and is not allowed either a clerk or messenger. Yet, according to the official customs returns herewith trans-

* A report by Consul Benedict on the "Extension of Markets for American Flour" was printed in CONSULAR REPORTS No. 165 (June, 1894), p. 327; another report, from the same officer, on the "Enlargement of the Exports of American Lumber," is in the printers' hands, and will appear in a special number entitled "American Lumber in Foreign Markets."

† See CONSULAR REPORTS No. 165 (June, 1894), p. 218.

mitted, the imports of the United States into Cape Colony in 1893 amounted to £494,854 ($2,407,916) against £30,205 ($146,978) from France, £244,574 ($1,190,097) from Germany, and £2,250 ($10,949) from Portugal, showing that the direct imports from the United States are nearly double the value of those from France, Germany, and Portugal combined. When it is taken into consideration that large quantities of American products are received here via England, France, and Germany (especially via England) and are credited to those countries, it is apparent that the consumption of American products here is more than twice that of the products of all Europe, England, of course, excepted.

COLLECTOR BURROWES TO CONSUL BENEDICT.

OFFICE OF THE COLLECTOR OF CUSTOMS,
Cape Town, February 28, 1894.

SIR: In compliance with your letter of the 10th current, I beg, now that the account of imports and exports of the colony has been compiled, to supply you with the following particulars relative to trade with the United States in the year 1893 for the information of your esteemed Government

Cape of Good Hope.—Mineral oil imported from the United States of America, 1,464,397 gallons; value, £36,210; from other countries, 18,927 gallons; value, £810. Total value of imports from the United States, £494,854. Total value of exports to the United States, £83,875.

A copy of the customs union tariff under act 1 of 1889, now in force, and of the rebate on goods passing through the colony in transit to places outside the union are also inclosed.*

I am, etc.,

F. W. BURROWES,
Collector of Customs.

Value of all imports from, and exports to, each country in the years 1891, 1892, and 1893.

Countries.	Imports.			Exports.		
	1891.	1892.	1893.	1891.	1892.	1893.
United Kingdom	£7,020,493	£7,691,195	£9,203,317	£10,579,417	£11,474,561	£12,401,227
British possessions.						
Ascension	.....	.....	.....	2,451	2,206	1,969
Australia:						
New South Wales	181	616	1,671	2,834	261	64
New Zealand	8,282	.....	8,656	189	41	698
South Australia	189,198	83,363	76,646	10	.....	734
Tasmania	.....	.....	.....	10	.....	.....
Victoria	22,427	56,601	22,729	387	787	20
Western Australia	.....	12	6,255	.....	.....	.....
Canada	.....	2,734	3,368	6,077	.....	.....
Ceylon	.....	790	2,057	110	109	128
Gibraltar	.....	.....	.....	.....	.....	18
Hongkong	5,375	7,176	8,047	.....	.....	.....
India:						
Bengal	94,674	100,273	134,195	.....	7,801	1,033
Bombay and Scinde	11	104	45	.....	.....	8
Burmah	1,045	21,225	.....	19	.....	101
Madras	.....	5	47	.....	.....	.....

*As the customs union tariff and rebate are published in the Special Consular Reports ("Tariffs in Foreign Countries," p. 538) it is not deemed necessary to publish them here.

Value of all imports from, and exports to, each country, etc.—Continued.

Countries.	Imports.			Exports.		
	1891.	1892.	1893.	1891.	1892.	1893.
British possessions—Continued.						
Mauritius	£239,142	£231,966	£239,026	£49,297	£18,608	£13,293
Natal	81,141	178,154	164,622	51,184	58,270	43,656
St. Helena	34	258	111	1,132	1,401	1,089
Straits Settlements	84	.....	.....	.....	.....	.....
West India Islands	5	.....	.....	15	26	60
Total	641,599	683,277	667,475	113,715	89,510	62,865
Other countries.						
West Africa	.....	13	33	31	.....	.....
United States:						
Atlantic ports	279,304	281,375	491,088	81,250	89,357	83,845
Pacific ports	.....	1,967	3,766	289	.....	30
Argentine Republic	.....	10,618	6,584	.....	.....	.....
Austria	.....	.....	.....	2	31	.....
Belgium	4,677	17,580	38,574	96,585	90,895	128,848
Brazil	358,001	248,749	302,154	.....	.....	.....
China	29,025	34,427	32,007	.....	.....	.....
Denmark	.....	.....	199	.....	.....	340
Egypt	.....	.....	7	.....	.....	7
France	23,532	27,119	30,205	283	12,536	22,774
Germany	123,690	163,044	244,576	96,453	59,887	108,434
Angra Pequena	1,430	730	1,656	4,423	1,934	4,557
Gough's Island	.....	.....	780	274	287	.....
Holland	11,706	123,483	103,008	2,473	3,406	23,458
Java	.....	8,003	12,000	164	185	280
Islands in the Pacific	.....	83	.....	.....	.....	.....
Italy	.....	.....	11,372	112	.....	.....
Madagascar	.....	358	.....	383	9	84
Norway	17,870	70,421	51,896	.....	.....	.....
Sweden	55,382	117,320	152,518	262	44	28
Portugal	530	570	2,250	.....	.....	9
Delagoa Bay	73	1,111	1,132	3,275	12,222	6,817
East African ports	443	634	984	16,447	4,501	3,505
West African ports	23	.....	.....	4,796	4,783	.....
Madeira	1,368	1,672	1,691	.....	50	.....
Russia	.....	1,507	1,501	.....	.....	.....
Spain (Canary Islands)	930	513	877	200	.....	1,160
States over the border	2,519	1,472	3,027	.....	.....	.....
Zanzibar	171	.....	55	.....	.....	.....
Whale fisheries	.....	.....	107	.....	.....	.....
Shipped as stores	.....	.....	.....	115,397	133,869	108,293
Total	910,674	1,112,769	1,494,044	423,099	413,996	492,462
Grand total	8,572,766	9,487,241	11,364,836	11,116,231	11,978,067	12,956,554

C. H. BENEDICT,
Consul.

CAPE TOWN, *May 10, 1894.*

PACKING GOODS FOR EXPORT.*

ADEN.

EN ROUTE FROM THE UNITED STATES.

There are several shipping routes from ports in the United States to this district, namely: By direct steamer from New York; by steamer from New York, Boston, Philadelphia, New Orleans, etc., with transshipment at London; by steamer from New York and Boston, with transshipment at Hamburg; by steamer from New York, with transshipment at Genoa; by steamer from San Francisco, with transshipment at Hongkong.

The ordinary freight passages from ports on the eastern coast of the United States to Aden are: By direct route, thirty days; via London, fifty-five days; via Hamburg, sixty-five days; and via Genoa, twenty-five to forty days.

Within a few years, direct steam communication has been established between New York and Aden via the Suez Canal, by steamers outward bound to China and Japan, usually leaving New York monthly and occasionally fortnightly. This is the best and most economical route, and is now the one most favored by exporters.

LANDING AND WAREHOUSING.

Goods are landed from the steamers by lighters.

Warehouses or sheds are provided at all the wharves for the protection of cargo.

EN ROUTE TO THE INTERIOR.

The greater part of cargo arriving from the United States is transferred to local steamers as received. Goods for the interior are shipped solely by camels, and all goods sent in this manner are opened and repacked in Aden to suit requirements. It is impossible to give the best sizes and weights for packages of any kind, as so much depends upon the distance to be traveled and upon the condition of the camels at the time.

OUTSIDE PACKAGES.

There is no distinct method of bagging, baling, or boxing goods for this market; if they are packed as ordinarily for export, they would meet the general requirements. Packages should not be made of unusual sizes, and it is not advisable to have them over 400 to 500 pounds in weight, when it can be avoided. It is not necessary to have the parcels waterproof.

DUTIES.

Aden is a free port, duty being levied only upon spirits, liquors, wines, drugs, salt, arms, and ammunition. A pier toll is levied by the port

* Reports received too late for insertion in CONSULAR REPORTS No. 160 (January, 1894), which was devoted wholly to "Packing Goods for Export."

trust upon nearly all kinds of goods landed on private or Government piers.

From the following table of tolls on principal imports, it will be seen that the proportion of toll to the value of imports is, with only one or two exceptions, extremely small.

Scale of tolls on landing goods on wharf.

Description of goods.	Rate.	Description of goods.	Rate.
Building material:		Jewelry, plate, and bullion.....per package...	$0.16
Cement, clay, etc.....per ton...	$0.08	Liquors:	
Bricks and tiles (foreign).....per M...	.16	1 dozen in a case.....per case...	.02
Bricks and tiles (native).....do.....	.04	Pipes of over 110 gallons.....per pipe...	.16
Boats (European).....each...	.32	Hogsheads of over 50 gallons.....	
Cabinet ware and furniture.....per piece...	.02	.....per hogshead...	.08
Canes, rattan and bamboo.....per bundle...	.01	Cask of over 28 gallons.....per cask...	.04
Carriages:		Cask of over 10 gallons.....do.....	.02
4 wheels.....each...	.32	Machinery and parts thereof.....per ton...	.16
2 wheels.....do.....	.16	Metals, other than above.....per cwt...	.01
Handbarrows and wheelbarrows.....do.....	.08	Oil:	
Coal, fuel, and coke for ships.....per ton...	.04	Turpentine and varnish...per 10 gallons...	.02
Coal for local use.....do.....	.08	Petroleum.....per case...	.00½
Cotton (piece goods, etc.)		Salt.....per ton...	.04
.....per case or package...	.02	Sugar.....per cwt...	.01
Fruits and vegetables	Free.	Tobacco (manufactured).....per package...	.08
Flour, grain, pulse, and seeds.....per ton...	.02	Wood and timber.....per 40 cubic feet...	.06
Grass and fodder	Free.		

DWIGHT MOORE,
Consul.

ADEN, *December 31, 1893.*

AUSTRIA-HUNGARY.*

OUTSIDE PACKAGES.

The exports from the United States to Austria-Hungary are of little account at present. They consist, for the most part, of raw materials, machinery, and hardware. The reason for this is mainly the high protective tariff of Austria. With a duty, for instance, of 40 florins per 100 kilograms of canned fruits and from 94 to 300 florins per 100 kilograms of cotton goods, it is impossible, or, at least, very difficult, for American manufacturers to compete in the Austrian markets. Hardly anything under the head of dry goods or groceries are sent, and no liquids, with the exception of petroleum. Petroleum seems to be shipped entirely to the satisfaction of the importers.

The article of export to this country that requires the most careful and scientific packing is undoubtedly machinery—dynamos for electric lighting, machinery for pumping and for agricultural purposes, etc. The finer parts

*Reports in answer to the "packing" circular were also received from Buda-Pesth and Fiume, but the report from the consul-general fully covers the subject for Austria-Hungary.

of these machines should be packed in strong wooden boxes, while the best casings for the entire machine or for the very heavy parts are crates encircled by iron strips. These crates, the wooden parts of which should be at least one inch thick, offer the advantage of being much lighter than a solid box and of permitting their contents to be seen. If practicable, no case should exceed 300, or, at most, 400 kilograms, as the difficulty of handling is greatly increased when this limit is exceeded. Great care should also be taken in securing the different parts by cleats, when packed together in the same case, as machines coming from the United States are sometimes injured through lack of care in this respect. The largest machines can not be packed to advantage. They are sent as they are, such parts as are specially liable to injury being packed separately. This is especially true of machines having large wheels. The wheels of electric-lighting machines, for instance, unless separately packed, are apt to be nicked, in which condition they cut the leather bands, with which they come in contact when in use. As a rule, machines are packed to the entire satisfaction of the Austrian importers. It is necessary that the boxing or casings be somewhat stronger than for transportation in the United States.

At Hamburg, Bremen, Rotterdam, Antwerp, Trieste, or Fiume, at which most of the goods destined for Austria are landed, heavy articles are handled with cranes and are generally taken good care of. It is at the small railroad stations, where cranes are not used, that they sometimes receive rough treatment, and, on account of this, they should be most carefully packed. The practice of making the top and bottom of the case thinner than the sides is not considered advisable for goods coming from the United States, as the amount saved in freight is not sufficient to counterbalance the added risk of breakage. In all cases, boxes should be carefully hooped.

It is with hardware and smaller articles especially that European importers find most fault with American methods of packing. The trouble is mainly caused by careless work and neglecting certain well-known rules. When different articles are packed together in the same box, each article should be specially labeled, wrapped in paper, and either protected by straw or secured by cleats, if there be danger of breakage.

Well-grounded and general complaint seems to be caused by the use of sugar barrels for export purposes, especially in the case of hardware. These barrels are too thin to stand the trip to Europe, and in many cases they arrive in a more or less damaged condition. This would probably have been remedied if it had not been for the fact that the packing charges are defrayed by the exporter in America (in Europe the importer generally pays them) and the European importer whose interest it is to maintain this condition of affairs, is not in the position to object unless the goods are seriously damaged. The sugar barrel is very cheap and is easy to handle, but should not be used for heavy or valuable goods.

The boxes used for the export of hardware from the United States to Austria are made of strong wood, and are for the most part entirely satis—

factory. Some firms use screws and some the long American nail in closing the lids of the boxes. The screws, which are easy to take out and put back, are to be preferred, as the nails are so difficult to extract that the lids are often broken at the custom-house, and the goods arrive in disorderly condition.

There is a certain quantity of rubber goods exported to Austria. One importer complained that, in many instances, rubber hose had been greatly damaged by being rolled too tightly.

Great care should be taken in the marking of goods sent to Austria, as it frequently happens that several boxes shipped under the same bill have various destinations. It is, therefore, important that the cases should be numbered, as per shipping directions of the importer. In the invoices sent with the goods, all the marks should be indicated.

The outside packing of American goods is, for the most part, satisfactory, but there is general complaint among Austrian importers as to carelessness in the disposition of smaller articles within the boxes.

DUTIES ON PACKAGES.

The boxing, or casing, on goods paying duty at the rate of less than 1.50 florins* per 100 kilograms,† pays duty at the same rate as its contents; when the duty on the goods is higher than 1.50 florins per 100 kilograms, there is no charge for casing, if the goods are weighed separately. When the goods are not removed from their casings, the following reduction is made in the net amount of duty paid: On goods packed in cases or barrels, 15 per cent; on goods packed in crates, 8 per cent; and on goods packed in open frames, 4 per cent.

MAX JUDD,
Consul-General.

VIENNA, *December 2, 1893.*

BRAZIL.

EN ROUTE FROM THE UNITED STATES.

Goods from the United States reach Rio Grande do Sul‡ either direct in sailing vessels, principally from New York, or by steamer from Rio de Janeiro, at which port they are transshipped. American goods are also received to a considerable extent by way of Liverpool and Hamburg, whence they are forwarded in the former case by way of Rio de Janeiro, and in the latter, recently, direct. As regards the handling and usage en

*1 florin=about 39 cents.

†1 kilogram=2.22 pounds.

‡The consular agent at Porto Alegre reports: "Goods shipped by steamer from the United States to Porto Alegre are sent direct or via England to Rio de Janeiro and there transshipped into coasting steamers unloading here. A considerable proportion of American goods also reach this port, indirectly, from Rio Grande do Sul and Rio de Janeiro, after being landed and dispatched in those ports. Goods by sailing vessels come direct to this port or are transshipped at Rio Grande do Sul."

route, I am unable to give any reliable information, but I hear frequent complaint of rough treatment, and pilfering of transshipped goods, generally in the lighters, as the goods pass from one steamer to another.

LANDING AND WAREHOUSING.

Certain classes of goods, such as flour, salt, coal, and resin, are allowed to be landed at the different wharves, after clearance at the custom-house, but the greater part of imported merchandise is passed into covered lighters, and then landed on the custom-house quay.

The Rio Grande custom-house has several spacious warehouses for the storage of goods in which they can be deposited for a limited time. The town is also provided with good warehouse accommodation, and every importing house of importance has its own deposit store.

EN ROUTE TO THE INTERIOR.

Goods are forwarded to the interior by rail as far as Pelotas and Bagé, and by steamers or schooners, when water communication offers facilities. From the railway stations to the more remote towns of the interior transportation is effected by means of bullock carts. Pack horses and porters are not employed. As the greater portion of imported merchandise, especially dry goods, is opened immediately after reception, and put up in smaller lots to suit the requirements of purchasers, no special original packing is required to meet the respective necessities of the different means of transport.

DUTIES ON PACKAGES.

Customs duties are the same for all Brazil, the special tariff (provincial) having been canceled. Goods pay on the net weight, that is to say, the weight of the box or exterior package is excluded, but that of the paper, tins, cartons, etc., included. Spirits, wines, and malt liquors are charged by the measure. The first are also taxed according to strength.

OUTSIDE PACKAGES.

The material for covering must naturally vary according to the nature of the article. Waterproof covers are not, as a rule, required, as it is to be presumed that the lining will provide against wet and damp.

Dry goods.—Bales should come lined with oilcloth; cases the same, or with tin or zinc for fine goods. The enhanced cost will be partially compensated for by a more favorable insurance. Cloths and cassimeres, etc., should come in tillot wrappers; other piece goods in paper, neatly fastened with tape or twine; canvas and tuck in bales, strongly corded.

Groceries and liquids.—Teas of the higher grades should be put up in showy japanned tins of half, 1, 3, and 6 pounds, in strong cases. The lower grades in papers of quarter, half, and one pound, or loose in chests and matting; soda biscuits in tins of 6 pounds; fancy biscuits in tins of 1 or 2 pounds; sardines in tins of 250 and 350 grams; salmon, lobsters, and—

oysters as usually sent give satisfaction; ale and porter in bottles and half bottles, packed in cases of 4 dozen whole or 6 dozen half bottles. Wines are sent in pipes—halves, quarters, fifths, and tenths—from Spain and Portugal; clarets in barrels, styled "bordelaises," but when sent bottled, each case should contain 12 whole or 24 half bottles, capsuled and labeled. The French put a stout wire around boxes of fine wines, and often a seal.

Iron manufactures and hardware.—Wrought nails are sent in barrels, wire nails (Paris points) in one-kilogram papers in cases; hollow ware and cooking pans in hogsheads; fine cutlery should be wrapped in paper and sent in tin-lined cases; dry paints come in kegs of wood or iron; mixed paints in tins and kegs of 1 pound to 28 pounds; oils in barrels or iron kegs.

WM. A. PRELLER,
Vice-Consul.

RIO GRANDE DO SUL, *October 20, 1893.*

CHILE.

EN ROUTE FROM THE UNITED STATES.

All goods coming to this country from the United States are brought by steamers via the Isthmus of Panama and by the Straits of Magellan or by sailing vessels around Cape Horn. By the Isthmus route, goods are subjected to several transshipments, and show signs of rough handling; cases and packages are often opened and the contents pilfered, the cause of which, in most instances, seems to be insecure packing. By the Straits of Magellan route and by sailing vessels, goods arrive in much better condition, although the time in transit is longer.

LANDING AND WAREHOUSING.

Goods from vessels are landed principally by lighters, but often at the wharves.

About three-fourths of all the goods coming to this port are immediately placed in the bonded warehouses of the Government. Those of unusual bulk and weight, such as engines and boilers, machinery, etc., are not placed in the warehouses, but seldom, if ever, sustain damage from exposure to the elements, as they are soon claimed by the owner or find their way into private warehouses.

EN ROUTE TO THE INTERIOR.

Goods destined to the interior are transported by rail, receiving further rough handling, but this does not necessitate their being packed in any unusual shape.

OUTSIDE PACKAGES.

The woods employed for outside covering, in the majority of cases, should be of the heavier, stronger classes, such as beech, birch, oak, or yel-

low pine, and the cases should be well battened at the ends and the strips put on at such intervals throughout their length as will enable them to stand the rough usage to which they are certain to be subjected. In many instances, where the goods are not too heavy and the customs duties are imposed on the gross weight, light woods (such as white pine, poplar, or ash) for the outside covering are preferable, when well strapped with iron. It is a singular fact that one seldom sees in this market a badly packed case from Germany or England, while complaints of damage or loss of goods consigned from the United States are frequent.

American packing for the Chilean market in general leaves much to be desired. Great carelessness is shown by the American shipping clerks and packers, who seem to consider any packing good enough for South America, while English and German goods destined for Chile are packed with the greatest care. Cases are frequently too light and not well enough secured. They should always be iron bound, and, when the value of the goods warrants it, tin lined.

Many manufacturers do not appreciate the necessity of special care in packing fragile articles, such as glassware, etc., for export to this country where the handling of freight is so exceedingly careless. Packages should be stronger, and with a thicker layer of packing between the outside layer of goods and the case or barrel. Cases should also be more compactly filled to prevent possible friction and consequent breakage.

The best method of packing bottles (such as wine, whisky, etc.), is to place each bottle in a thick straw envelope, fitting them neatly and firmly in the case so they can not move, with a thick corrugated piece of cardboard placed on each side, inside the case, and facing the bottoms and corks of the bottles. Especial attention should be given to the packing of drugs and medicines for this market. One of the most prominent dealers in this line informs me that he has almost ceased importing from the United States, as the inferior packing occasioned him constant loss by breakage and trouble in making claims.

Cases for machinery should be much heavier than those usually employed, and should be strengthened by heavy battens around the ends. Cases are frequently so imperfectly jointed that any chance dash of water penetrates the interior, and rust results. All loose parts, repairs, etc., should be packed in separate cases from the body of the machine, unless they can be thoroughly and securely fastened in such a way that there is absolutely no possibility of their shaking loose when packed with the machine itself. The neglect of this precaution often leads to serious damage. Bright parts of machines are not always well enough "smeared" to protect them from rust.

Furniture, largely imported here from the United States, usually arrives in good condition if packed "knocked down."

The principal importer of American iron safes gives as his opinion that safes should be packed, with a view of protecting the wheels and knobs, by placing a strip of scantling around the safe in addition to incasing it in

canvas in the usual method. Wheels and knobs are often broken off in the handling at the Isthmus, on the wharves, and in barges or lighters.

Cotton goods, such as sheetings, shirtings, flannels, prints, and goods of like nature, should be covered first with strong brown paper, then tarpaulin or oiled waterproof cloth, and, as an outside wrapper, strong sacking cloth, the bale being well pressed and securely hooped with strong iron hoops. The size of the bale must depend upon the particular trade of the merchant ordering.

Canned goods, such as preserved fruits, meats, vegetables, fish, lard, etc., form a very important item of trade between the United States and Chile, and should be packed in strong, but light, cases, as the customs duties are imposed on the gross weight. Exporters in the United States should bear in mind that their goods must remain in a ship's hold from one to four months, and are subject to a thorough sweating, and that much of the time is spent in the tropical regions.

The largest importations from the United States to this country, excepting lumber, consist of agricultural implements and oils. The packing of agricultural implements is very satisfactory, but there are occasional complaints of the soldering of the tins containing paraffin.

DUTIES.

All classes of machinery, mining, agricultural, electric, gas, etc., mechanics' tools; surveying, chemical, and photographic apparatus; artists' materials, and models of all kinds are free of duty.

I append a list of articles upon which customs duties are imposed on the gross weight, viz:

Groceries.—Salt meats, hams, sausage, bacon, soap, olive oil, almonds, salt, rice, sage, pease, beans, hazelnuts, mushrooms, barley, dried plums, cloves, pepper, chicory, anise, cinnamon, chocolate, cocoa, sweetmeats, pickles, biscuits, extract of meats, cheese, canned fruit, vegetables, beef, fish, oysters, salmon, lobsters, shrimps, sardines, butter, lard, baking powder, mustard, sauces, Mellin's and other infants' food, and oatmeal.

Oils.—Linseed, lard, machinery, gasoline, kerosene, cod liver, castor, almond, pine, walnut, whale, and seal.

Hardware.—Scales, iron trays for mines, boat hooks, door butts, cooking stoves, hollow ware, iron bedsteads; cut, galvanized, wire, copper, composition, and horseshoe nails; tacks, copper plate, iron tanks, screws, washers, horseshoes, galvanized iron or enameled trunk handles, hooks, plates, oval and round dishes, door knockers, rowels (or window pulleys) furniture casters, etc.; shot, shoe eyes, sadirons, milk pans, iron nuts, and zinc in sheets.

Acids.—Sulphuric, nitric, muriatic, carbolic, and acetic.

Paints.—White and red lead, umber, Vandyke brown, cassel earth, sienna earth, king yellow, emerald green, indigo, Prussian blue, ultramarine blue, vermilion, lake, and ocher.

Miscellaneous articles.—Patent medicines, tar, spirits of turpentine, asbestos, advertising matter, common varnish (for ships), dressed staves, barrels (knocked down), shoe blacking, twine, quicklime, cardboard, vegetable and mineral wax; Portland and Roman cement, firecrackers, glue, tallow, corks, glassware of all kinds, oilcloth, veneering, shoe pegs, China matting, rope, hemp fiber, glucose, India-rubber, pine or vegetable grease, cotton waste, bath bricks, sandpaper, earthenware, hops, broom handles, putty, moldings (frame), wrapping paper, toilet paper, common tissue paper, cocoa mats, blasting powder, dynamite, porcelain, Hessian cloth, sacks, baize, cotton shirting and sheeting, canvas (cotton and linen), carpets, writing ink, chalk, waiters' trays, sulphur, and mineral waters.

JAMES M. DOBBS,
Consul.

VALPARAISO, *February 11, 1894.*

GERMANY.

EN ROUTE FROM THE UNITED STATES.

Goods from the United States reach Bremen by steamers and sailing vessels. Most of the goods are brought over by the Norddeutscher Lloyd Steamship Company from New York and Baltimore, and the goods are handled as carefully as could be expected.

LANDING AND WAREHOUSING.

The goods are unloaded partly into lighters and partly on the wharves of the free harbor at Bremen, about 35 miles up the River Weser, where large warehouses are erected, which give ample shelter to all goods. The goods remain at the harbor under charge of custom-house officers until they are claimed and the duties paid.

EN ROUTE TO THE INTERIOR.

Goods are shipped to the interior by rail and by river on lighters or canal boats. They are handled carefully, no complaints being heard.

OUTSIDE PACKAGES.

All dry goods, laces, cotton goods, etc., should be packed in waterproof baling. Heavy boxes should be avoided, if practicable, on account of additional cost of freight.

Cotton is, of all the American goods, the most important, and its packing ought to be greatly improved.

DUTIES ON PACKAGES.

The packages containing lubricating oils and petroleum (barrels) and dyestuff extracts (cans) are dutiable, while casks containing oysters, dried apples, maize, maize flour, caviar, lard, and cans containing meat are not

dutiable. Duties are levied on the gross weights, and the charges do not affect the cost of the goods to any extent.

FAULTY AMERICAN TOBACCO INSPECTION.

There have been a great many complaints of tobacco, in hogsheads, not being equal to the samples drawn. Samples are drawn in Bremen by impartial, sworn experts, who have no interest in depreciating the quality. These complaints have been made for some years, but never to such an extent as in the past year. The irregular packing, called "nesting," gives proof of unreliable inspection in the United States.

The complaints are especially directed to the western markets. Mayfield and Nashville are said to have had for some years the most unreliable inspection, while Clarksville, whose growth is dealt in to the greatest extent at Bremen, has always been considered honest and reliable, until the past year, when the complaints against that city have been greater than those against any other. The samples of Clarksville tobacco, drawn here, show bad and mixed packing and inferior quality as compared with the Clarksville inspection samples, on which the respective transactions were based.

The nature of the complaints is serious, inasmuch as it is liable to ruin a flourishing and legitimate business with the United States.

Some of the Cincinnati inspection of Burley tobacco and the Baltimore inspection of Maryland tobacco of last year have also been criticised.

This report is based upon representations made to me by leading tobacco dealers of Bremen.

HUGO M. STARKLOFF,
Consul.

BREMEN, *January 31, 1894.*

MEXICO.

EN ROUTE FROM THE UNITED STATES.

All goods destined for Piedras Negras reach Eagle Pass by the Southern Pacific Railway, thence across the Rio Grande by the Mexican International Railway, which runs into the interior as far as Durango, crossing the Mexican Central Railway at Toreon.

LANDING AND WAREHOUSING.

There are two fine warehouses adjoining the Piedras Negras custom-house, where all goods are housed waiting inspection, with railway tracks on each side. On one side the goods are examined and classified, and on the other side they are loaded into the cars when destined for the interior.

Goods shipped over the International Railroad are carefully handled and reach their destination without unnecessary delay. This road is provided with splendid warehouses all along the line for the reception and protection of goods.

EN ROUTE TO THE INTERIOR.

Merchandise of all kinds is shipped to the interior by rail and mule and ox carts. Packages for shipment by rail should not exceed 400 pounds, such packages being easily handled and less liable to rough usage than heavier packages. Goods shipped or transported part of the way in mule or ox carts, or by pack mules, or pack animals of any kind, should not exceed 200 pounds per package. It would be better still to have such packages weigh from 100 to 150 pounds, because they will not be subject to the rough handling which all heavy packages undergo.

OUTSIDE PACKAGES.

Dry goods bales should have burlap for the outside and tar cloth or heavy oilcloth for inside coverings. Dry goods securely wrapped in tar cloth or oilcloth, closely pressed and securely covered with double burlap bagging and strapped with iron are considered to be satisfactorily packed for shipping. European dry goods come here packed in this way. Such packing seems to meet the demands of all kinds of transportation in Mexico, and protects the goods from the ravages of dust, which is simply ruinous to dry goods unless thus protected. If cases are used in packing dry goods for shipment to Mexico, they should be tin lined and waterproof to protect them more from dust than from water, for it does not rain much here. The higher cost of such packing is repaid many times by the safer transportation and the free importation of the burlap, heavy paper, and tins, all of which can be turned to good advantage by those who receive the goods. No bale should weigh over 400 pounds; in fact, from 50 to 250 pounds would be better still.

Little attention seems to be given to the inside wrapping of dry goods. Such goods shipped to this point are generally put in cases without any inside wrappers at all, while a sufficiency of thick paper or cloth or some kind of oiled cotton goods should be used. This will protect the goods against moisture and dust, especially dust, which, as I have said before, in this part of Mexico is very penetrating and injurious to all kinds of dry goods.

Great carelessness is shown by our merchants in packing merchandise in cartons for the Mexican trade, the cartons arriving generally cut up and damaged so as to look like second-hand goods. Prints, shirtings, etc., should be put up in compressed bales with sufficient interior wrappings of some kind of heavy oiled domestic or heavy tarred paper. The heavy outside cases generally used cause unnecessary freight, with no corresponding benefits.

As a general rule, American groceries meet all the requirements of the trade here, but liquors are not usually packed or cased sufficiently strong for the long trip and rough handling by railway employés and custom-house people at the port of entry and point of destination, especially when the goods are destined for the interior. Cases, as a general thing, are too light and insufficiently nailed. Barrels containing liquors should be better

coopered, or, better still, the liquors should be packed in double barrels or protected by gypsum, after the French and Spanish manner. When goods are shipped in bags, the bags are generally too light and thin. Flour and rice should be put in stronger bags—double bags would be better.

Iron manufactures and hardware are generally well packed, and arrive in good condition.

DUTIES.

All goods, on importation into Mexico, are subject to custom-house inspection, when at least 10 per cent of every kind of goods are opened and revised. As a general thing, all American goods entered at this port are opened and revised by buyers' agents at Eagle Pass, Tex. (just across the Rio Grande from Piedras Negras), in order to obtain the necessary data for Mexican clearing papers. If such data were furnished by the American merchants and shippers, as is done by European merchants and shippers, no such revision and subsequent ill treatment of cases and baled merchandise would be necessary.

I wish I could impress this point on our merchants and shippers of goods to Mexico. It would save all parties much trouble and stop the spoliation of their goods under the pretext of examining for revision. If this data were furnished by our merchants and shippers to buyers' agents at Eagle Pass, Tex., the latter could make out the Mexican clearance papers and save all this trouble and loss.

American manufacturers and merchants who wish to do business with Mexico and the Mexican people ought to study closely the Mexican custom-house tariff and regulations, and keep well posted on all alterations if they wish to keep up with their European competitors, for I can assure them that Europeans are fully informed on all these matters and know, before their goods leave their stores in Europe, every step they will take before reaching their destination. If our merchants would pay more attention to these things, which are all important, it would save much trouble and expense. Besides, as long as these things are neglected, preference will be given to Europe, where the venders even assume (so well posted are they as to Mexican custom-house tariff and regulations) all responsibility for "clerical errors" in declarations.

Piedras Negras is in the "free zone," which is a strip of territory running along the Rio Grande and extending back therefrom about 12¼ miles. All goods are permitted to enter this "free zone" on payment of about 10 per cent of the duties levied on goods entering the tariff zone.

ACKNOWLEDGMENTS.

For the information relative to dry-goods packing contained in this report I am indebted to Mr. John Cram, of the firm of John Cram & Co., one of the oldest and most reliable importing houses here of both American and European goods. If our merchants give the matter due consideration, it will result in a greatly enlarged trade.

For the information on railways and other matters, I am under obligations to Mr. S. M. Johnson, general manager of the Mexican National Railway.

Señor Juan A. Muñoz, customs officer at this port, was always ready to supply me with any information necessary to the completion of this report, and I can not thank him too much for his courtesy.

JESSE W. SPARKS,
Consul.

PIEDRAS NEGRAS, *February 10, 1894.*

NEW SOUTH WALES.

I have called upon the various merchants and importers of American goods and interviewed the heads of nearly all importing firms in the various lines of business, also the principal employés in charge of unpacking, with the result that, except as noted hereafter, the reports received were of a very satisfactory nature. All those connected with the different branches of importation concurred in the opinion that American goods are packed quite as well as those received from England or elsewhere, and in most cases the verdict was decidedly in favor of American packing, the packages sent out being generally of a more handy size, thus facilitating their sale and distribution.

I made a special point of asking each individual whether he could suggest any improvement in any respect whatever. The answer invariably was a negative one.

The general trend of opinion received verbally is illustrated by extracts from the two following written replies which I received. A wholesale grocer writes:

> All lines we import are landed in perfect order at all times, which, to a great extent, is evidence of careful and correct packing. This being the case, nothing more is needed. We, therefore, can not suggest any improvement.

An importer of ironmongery writes:

> We have much pleasure in stating that the way hardware goods are put up renders the work of unpacking very easy, owing to the connvenient size of packages which are used; also the careful manner in which the several lines are packed goes a long way in assisting their sale.

The exception to the favorable report is in two lines—

(1) Medicine bottles, the importer stating that the American bottles he received were packed in dried grass in boxes, the average breakage being about 10 per cent. His experience with English-packed bottles is that breakages do not average more than 2 per cent. This he attributes to the mode of packing—plenty of damp straw in casks or barrels instead of a little dry grass in boxes or cases.

(2) An importer of fruit jars in Maitland, an important inland town 20 miles from Newcastle by rail, writes:

We certainly can suggest a better of mode of packing—in the exercise of much more care. The breakage in the last lot of glass jars ex "Milton Park" was, to our mind, excessive and could have been much lessened if more straw had been used between the layers of jars. Our packer informs us that when he opened the cases he found in more than one instance no straw at all placed between the jars. This in itself would be sufficient to cause serious breakage. Of course, the blame lies with the packers and not the shipping agents.

I saw a lot of lamp chimneys capitally packed, and the importer was well satisfied with them.

STEWART KEIGHTLEY,
Vice-Commercial Agent.

NEWCASTLE, *November 25, 1893.*

American products reach Sydney by steamer from San Francisco or Vancouver or by sailing vessels from the various ports of the United States, and goods are subject to no rehandling en route.

LANDING AND WAREHOUSING.

The harbor of Sydney is deep everywhere, and goods are lifted by cranes on to solid, convenient, and substantial wharves and wheeled to safe and commodious warehouses. There is no liability to exposure of goods from the elements.

EN ROUTE TO THE INTERIOR.

From Sydney, goods are taken either by steamer to coast or river landings or by rail to the interior. I am informed that there are usually good warehouses at the steamer landings, and I know, from observation, that the railway stations are large, convenient, and safe. From these points, many goods are hauled by ox teams on large, heavy wagons, and in some cases, packed on camels for the still smaller points in the interior. From such information as I am able to give, I think the interior distribution is carried on by middlemen and not by importers, and that such goods as are thus transshipped reach this point in packages about the proper size and form for convenient transshipment.

OUTSIDE PACKAGES.

The scope of this is so broad that I can only answer that it depends wholly upon the nature of the goods specially alluded to. However, I have interrogated responsible Sydney firms trading in various wares on these points, and submit herewith the answers as the "best evidence in the case."

Messrs. Moses Moss & Co., general merchants and importers, write:

We have pleasure in stating that during the past forty years, during which time we have been regularly importing all classes of American goods, we have had slight cause to complain in regard to the packing, and at the present time we find that the packing of American goods compares favorably with the modes adopted by other countries, and we do not know of any improvement that can be made in the packing of the goods we handle.

Messrs. John Keep & Sons (limited), hardware merchants and ironmongers, write:

All goods should be packed in strong cases or crates of wood; if in bales, they should be protected with battens to prevent chafing. The class of packing makes no difference so long as economy in space is studied. All goods, as a matter of fact, pack closer in square cases, and the cubic measurement, on which freight is paid, is less, as in figuring the cubic measurement the extremes are taken. Glassware is, as a rule, packed in casks, and great care should be taken to give this class of goods sufficient packing to prevent breakage. Resin, plaster, and such goods come in barrels, following the usual custom as in domestic trade. Packages do not require to be water-tight, but all bright goods should be finished off with some material to prevent rust from damp air. Oiled and waterproof paper should be used freely in packing axes and all kinds of tools.

Any weight that can be readily handled is satisfactory; simply pack so as to save space.

Catalogues should always be furnished, with prices and discounts quoted; otherwise they are of no use.

Samples of any new lines, and especially novelties, should be included free when sending other shipments. This is one of the cheapest ways of making new lines known. Full information regarding such samples should be sent by mail.

Messrs. D. Mitchell & Co., wholesale grocers, write:

The manner of putting up confectionery is a matter which can better be decided upon by the manufacturer, as each factory, as a rule, determines upon its own style of packages and the manner of packing, but any form that is novel and attractive would, no doubt, draw a certain amount of business.

Farinaceous and milk foods should be put up in small packages, the smaller the better, so that the retail price can be brought within the reach of our laboring class.

The popular size for preserved meats is in 2-pound tins.

Fish in one-pound tall tins only can be sold on this market.

Fruits and vegetables should be put up in 2½-pound tins only.

Dried apricots and peaches should be put up in 25-pound packages, dried apples in 50-pound packages, and other dried fruits similarly.

In regard to jams and jellies, we scarcely think that the United States will be able to do business in these lines, as there are a number of local makers who have driven out nearly all the imported goods.

All the above goods should be packed in wooden cases, the gross weight, including cases, not to exceed 75 pounds.

Kerosene oil should be packed two tins to a case, each tin to contain 4 imperial gallons.

This fairly embraces the information asked for in your letter, but, in conclusion, we might say that if the American manufacturers are desirous of bringing their commodities prominently before the notice of our consumers, our experience tells us that the more novel and attractive manner in which the goods may be got up, the more readily are they asked for and accepted by our consumers.

Messrs. Hudson Bros. (limited), hardware and general manufacturers and importers, write:

For outside packages, timber, such as elm, beech, or other tough timber should be used. Packages are often broken and the contents damaged when common spruce timber is employed.

If the articles are of a fragile nature, such as stove castings, etc., they should be packed in timber cases; other ironwork, such as pump barrels, etc., may safely be sent in crates or wrapped in jute.

When possible, the outside limit should be 5 cwts., to facilitate easy handling and reduce the risk of breakage.

The Secretary of the Sydney Chamber of Commerce, Mr. Henry Mitchell, writes:

One and all say the Americans leave nothing to be desired, as a rule, as regards their packages, and they have adapted the forms best suited for the respective goods. Now, take hardware and irommongery; some shovels come in bundles and some in cases; some nails in cases, and so on. To give you a decided reply you would have to furnish persons with lists of particular articles. Everything depends on the goods, but the manufacturers have, in a great majority of cases, left nothing to be desired as regards packing. The only outside package on which there is any duty in New South Wales is iron tanks.

Mr. William M. Brison, a member of the firm of Messrs. Williams, Brown & Co., of San Francisco, a firm which does nearly one-half of the entire canned-goods trade between San Francisco and New South Wales, writes me as follows:

Replying to your favor of December 28, would say that my experience thus far has shown me that our American friends at home sometimes overlook the art of preparing goods properly for export. They do not seem to consider the long voyage, the number of transfers or changes, and also (what is most trying) the changes of climate the goods must undergo en route, especially on the way to Australia, where they cross the equator once and pass from cold to heat in very short order.

In the packing of canned salmon our people are slowly acquiring perfection. There are two styles of packing this article, one for shipment from the Pacific coast to the interior of the United States, where the cases are made light on account of freight rates, and the other for export, where the cases must be handled on sailing vessels and on steamers and taken at measurement freight. The cases are strong and well nailed. A little expense and careful attention to detail would assist our American friends a great deal in this respect.

In one instance, we imported into Sydney a quantity of paper bags, which were simply covered by paper covering, whereas they should have been covered with sacking or something of that nature, as, upon arrival, they were greatly chafed and quite a loss ensued.

To be brief, our friends must bear in mind that light (if possible), but strong, well-put-together packages should be used. If of wood, the package must be well made and from well-seasoned lumber. I have seen instances where a case not well seasoned has dried out en route and the nails were simply dropping out of the case, which was falling apart. In comparison, I would say that the Germans are among the greatest people in the world for putting up export packages properly. Perishable goods are sometimes well protected by a tin lining in the case, which, although it is somewhat expensive, amounts to very little on goods that are high in value.

On hams, I have had the opportunity of viewing a great many packages, and our friends at home have not yet adopted the clean, neat style of the English ham-packers for export. I now refer to the packing itself, made up of the ham covered with the chaff and sacking.

I could go on mentioning numerous articles of this kind, but if our friends will carefully consider the rough handling that railroad men, draymen, steamer stevedores or ship stevedores, etc., give to these cases, it will result to their benefit. The shipping of goods from Chicago to New York is generally made in through cars, one handling in Chicago and one handling in New York. But suppose a shipment is made from Elgin, Ill.; the goods are carted from the warehouse to the train, or, sometimes, they are put into the trucks at the warehouse; then they are carried to New York, where they are perhaps carted across town over the rough roads and deposited on a wharf; they are then taken by the stevedores and perhaps placed in slings and hauled aboard ships or steamers and dumped into the hold. Upon arrival in Sydney, the goods are hoisted from the hold in slings and landed on the wharf; then placed on carts or drays and taken to stores or warehouses, where they perhaps lie for a time and are

afterwards taken out and shipped perhaps hundreds of miles up the country. All these points should be carefully considered.

Another item I would particularly impress upon our friends in the United States is to have the cases neatly stenciled with the name of the producer of the goods on the cases. If the goods are sold by weight, the cases should be stenciled on the outside with the gross, tare, and net weights, as well as the number of dozen packages in the case. All these little details serve to attract attention.

In conclusion, I regret to say that our people at home (that is, the majority) are certainly not as fully up in proper packing for export as our foreign friends are.

DUTIES ON PACKAGES.

There are no customs duties on what may be termed "packages," except iron tanks, on which there is a duty of 10 per cent. Of course, the duty, like transportation, insurance, packages, etc., is an item of cost to every person in every transfer by purchase until the article reaches the final consumer, where the whole cost falls, with the effect of decreasing consumption by increasing cost. Where tin cans could be used instead of iron, the duties would be saved.

GEO. W. BELL,

SYDNEY, *December 28, 1893.* *Consul.*

PERSIA.

EN ROUTE FROM THE UNITED STATES.

Goods reaching Bushire from the United States by steamers are transshipped at Liverpool and Bombay, or they may be transshipped at Cardiff, Newport, or London into the vessels of the Anglo-Arabian and Persian Steamship Company and the Persian Gulf Steamship Company, which run direct from England to the Persian Gulf.

LANDING AND WAREHOUSING.

Goods are landed from the vessel into lighters. Vessels of deep draft anchor in the outer roads, a distance of about 7 miles; steamers of less draft than 18 feet enter the inner roads to discharge cargo, the distance then being reduced to about 3 miles.

Warehouses are supposed to be provided. The custom-house has a few warehouses in which valuable goods may be stored pending their removal; but the majority of goods landed are stored in the open and exposed to the elements, and the consignees have consequently to attend to their own interest by speedy payment of import duty and removal to their own storerooms.

EN ROUTE TO THE INTERIOR.

Goods are shipped to the interior by pack mules and donkeys, and in certain times of the year, on camels, and are subjected to rough usage en route. The loads are unslung and allowed to drop to the ground. For fragile goods, special arrangements are made with the muleteers at enhanced rates. The

packages should all be of oblong shape, whether cases or bales, and if for transit by mule, their weight should vary from 175 to 200 pounds gross each. The weight of kegs, barrels, etc., intended for transit by mule or donkey should never exceed 112 pounds.

OUTSIDE PACKAGES.

If balable piece goods, the bale should be first wrapped in gray shirting, then in canvas, and iron hooped. All Manchester goods are sent to the East in this manner. For gray goods, the wrapper may be omitted. Other descriptions of piece goods are packed, according to nature and value, in boxes, with or without tin or zinc lining. Kegs, barrels, or bags (when tin-lined boxes are dispensed with) may be covered with cheap waterproof, but this would be necessary only in the rainy season, from November 15 to April 15.

DUTIES.

The import duties are payable ad valorem. The size of package will not affect the cost of goods to the importer unless he be a native subject, for whom provision of duty is made on a different scale, according to the description of the merchandise imported.

T. J. MALCOLM,
Consular Agent.

BUSHIRE, *December 25, 1893.*

PERU.

EN ROUTE FROM THE UNITED STATES.

Goods from the United States reach this district generally in good condition via Panama and the Straits of Magellan by steamers and around Cape Horn by sailing vessels.

LANDING AND WAREHOUSING.

Goods are landed at Eten by lighters and discharged at an iron skeleton mole that runs out about 800 yards into the sea, through a heavy surf, and at Pimentel by lighters (rafts) on the sand beach; Eten and Pimentel are the ports for this district.

Warehouses are provided.

EN ROUTE TO THE INTERIOR.

Goods are shipped from the ports of Eten and Pimentel to the principal towns of this district by rail, and to the interior by pack mules. The purchasers from the interior arrange the goods to their own convenience at Chiclayo, as some are carried on mules and pack horses, others on donkeys and by porters.

OUTSIDE PACKAGES.

The packing of American goods which arrive here is generally convenient. Waterproof packages are always to be recommended, goods some-

times getting wet on landing. If possible, the weight of packages should not exceed 100 kilograms each.

DUTIES ON PACKAGES.

Customs duties on most goods are charged on gross weight. It is therefore best that packing material should be as light as possible, combined with sufficient strength to resist handling en route.

ALFRED SOLF,
Consular Agent.

CHICLAYO, *October 31, 1893.*

AMERICAN TOBACCO IN IRELAND.

I beg to call the attention of the Department to an industrial project which will shortly be commenced, to wit, the erection of a large tobacco factory in this city. In the same connection, I desire to call attention to the status of the trade in this section, with a hope of enlarging the foreign market for American-made smokers' goods.

Messrs. Thomas Gallagher & Co., of Belfast, who are the promoters of the enterprise, have already a very large plant here. Their new structure is to be of brick and iron, and will cover about 3 acres of ground on York street, one of the principal thoroughfares. The frontage will be 250 feet, the depth 300 feet, and the height 80 feet, divided into five stories. The firm owns enough ground to increase the frontage and depth to 800 feet, if required. It will be the largest factory of the sort in the Kingdom, and, the local press claim, the largest in the world. The cost of the building alone is estimated at $250,000, and when in full working order it will employ in the neighborhood of 1,000 hands.

It occurs to me that, with intelligent energy and reasonable perseverance, the manufacturers of tobacco in its several varieties and grades in the United States might largely increase their trade in this section. There is very little of the American-made article sold over the counters of the retailers, although 90 per cent of the leaf is grown in the United States, principally Kentucky, Virginia, the Carolinas, and Missouri. The product of the latter State is mostly used for the manufacture of twist and plug, or, as it is called here, "cake" tobacco. The goods made here are mostly plug in its various shapes, long-cut smoking tobacco (short cut is not popular), and a small quantity of cigarettes. The product is disposed of almost entirely in Great Britian and Ireland. Manufacturers here can not compete with continental countries having a lesser rate of duty, or with France, where the Government has control of the trade.

The duty on tobacco coming into the Kingdom is 3*s.* 2*d.* per pound on the leaf and 5*s.* per pound on manufactured goods.

There are a large number of people in this country who smoke the pipe. On the street, in the house, or at work (if allowed) the pipe is the constant companion of the masses. I believe that at least 75 per cent of

the male population from 18 years of age and upwards smoke—mostly pipes. A few smoke cigars, and a large and increasing number smoke cigarettes.

The cigarette habit is in its infancy here, but it is rapidly spreading. While the popularity of the pipe is confined to no section of the Kingdom, the people of Ireland seem to be particularly fond of it; therefore, the consumption of smoking tobacco is enormous, and the manufacturer who can combine cheapness, quality, and flavor to the greatest satisfaction of the smoking public, is assured of an excellent trade.

There are no official data upon which to base figures, but as far as I am able to learn not more than 5 per cent of manufactured smoking and chewing tobacco is American.

The smoking tobacco largely used in the cities is a quality which retails at about 7 to 8 cents per ounce and about 96 cents per pound. The next better grade, which has a good sale, sells from 10 to 12 cents per ounce, with a proportionate discount in larger quantities. In the country districts, a cheap plug, or roll, tobacco is the favorite, at about 6 cents per ounce. The average profit of the retailers of smoking tobacco is about 20 per cent.

The American-made cigarettes are the favorite, and fully 60 per cent of the consumption in this district comes from the United States. Of the remaining 40 per cent, Turkey and Egypt (a few from Algiers) get the bulk; local manufacturers get the remainder. There is no distinction between the Turkish and Egyptian brands. It seems that the tobacco is all raised in Turkey, and the difference is in the blending and manufacture.

American cigarettes are sold at an average of $10 per 1,000, while the Turkish and Egyptian brands cost about $12.50. The demand for cigarettes, as already mentioned, is greatly on the increase, and as the American brand is quite popular, it behooves the American trade to carefully watch and protect its growing interests here. One of the objects of the Messrs. Gallagher is to increase their facilities for the manufacture of cigarettes.

Of the cigars consumed in this district, which are few comparatively, fully 80 per cent are manufactured in Great Britian and 15 per cent are Havanas; other countries make the remaining 5 per cent.

If tastes are consulted carefully, there is an apparent opportunity to extend the trade in the better grades of American cigars; for, quality considered, they sell at retail from 30 to 40 per cent cheaper than like cigars sell here. At present, cigars—that is, good cigars—are unpopular, except among the wealthy, because they are expensive. There are very poor cigars sold as low as $2 per 100, which are retailed at 3 cents each. Some of the lower grades offered in this market would be unsalable in many parts of the United States.

Manufacturers wishing to enlarge their foreign trade should send practical and astute representatives over here to survey the field, gauge accurately the standard of goods, compare prices, and note the qualities and methods of packing best adapted to this market.

JAMES B. TANEY,

BELFAST, *May 28, 1894.* *Consul.*

NOTES.

Consular Reports Translated into Foreign Languages.—Handels-Archiv (Commercial Archives), an official publication of the German Government, issued from the Imperial Department of the Interior, contains in its number for May, 1894, a translation into German of such extracts from CONSULAR REPORTS No. 160 (January, 1894)—"Packing Goods for Export"—as are of more particular interest to German manufacturers and merchants.

Consul Jastremski writes from Callao, Peru, May 28:

On receipt of Advance Sheets of Consular Reports, May number, I deemed it proper to transmit a copy thereof containing my report on "American Trade with Peru," CONSULAR REPORTS No. 164, p. 61, to the editor of El Comercio, of Lima, one of the most influential daily journals in Peru. In its issue of the 23d instant, El Comercio reproduced said report in Spanish. The publication seems to have been favorably received by the public, and El Comercio, in presenting it to its readers, was pleased to express its approbation of its contents in the following terms:

"COMMERCE WITH THE UNITED STATES.

"We have before us the memorial which Gen. Jastremski, the new United States consul at Callao, has forwarded to the United States Government treating upon the subject of commercial intercourse, or rather the lack of commercial intercourse, between Peru and the Great Republic of the north at the present time.

"The report referred to has been widely circulated, for it has not only been deemed worthy of publication in the CONSULAR REPORTS of the United States, the official organ for giving publicity to the most important reports of this class that appear in the world, but it has also been published in, and favorably commented upon, by many of the North American papers.

"We, for our part, are simple lookers-on in the matter, since the measures proposed by the consul can not possibly be adopted by Peru, but only by the United States. We can at least confirm the correctness of the report, and we can not conceal our satisfaction at seeing the intelligent author now repeat, almost word for word, what we had occasion to state about two years ago respecting the passenger traffic between our coast and Europe via the United States. In fact, the actual state of affairs as regards this matter is incomprehensible when we consider that one of the interested parties is a people so enterprising as those of the United States.

"The passengers from this part of the Pacific coast of South and Central America that travel to Europe and *vice versa* number somewhere about 1,000 per month, and although the journey via the Antilles is longer and more tedious, a large proportion of the said passengers choose this route, because the United States route presents the obstacle of inconvenient and inadequate steamers plying between Colon and New York. Let these be changed, let the fare be improved, and let the service aboard be more attentive. In a word, let a line of steamers be established between Colon and New York similar to the four first-class lines that ply between New York and Europe, and nobody will think of spending three weeks aboard a steamer for the pleasure of going ashore for a few hours at Jamaica and at Barbados, when the journey can be done in two weeks with the greater inducement of seeing New York.

"We find the rest of the suggestions made by Gen. Jastremski equally correct, the importance of which may be appreciated by the readers of El Comercio after a perusal of the translation of this report."

Special Consular Reports.—Two Special Consular Reports have been prepared by the Bureau of Statistics, Department of State, during the month of June, and are now ready for distribution. They are "Extension of Markets for American Flour," being a reprint of reports which have appeared in the regular series of CONSULAR REPORTS, and "American Lumber in Foreign Markets," a collection of reports from consular officers upon the timber resources of various countries and the prospects for developing the trade in American lumber.

An Opportunity for California Wines in Switzerland.—Consul Germain writes from Zurich, June 1:

Since the advent of a tariff war between France and Switzerland, the export of wines from the former into the latter country has greatly diminished; in fact, the importation of French wines has almost ceased, declining 95 to 96 per cent. The average annual import for the years 1890, 1891, and 1892 was 273,000 hectoliters (7,211,841 gallons), while Swiss statistics show that for the year 1893, 26,700 hectoliters (705,334 gallons) only were imported.

The exports of wines in barrels to different countries from France for 1890, 1891, 1892, and 1893 were, in hectoliters of 26.417 gallons:

Exported to—	1890.	1891.	1892.	1893.
	Hectoliters.	*Hectoliters.*	*Hectoliters.*	*Hectoliters.*
Switzerland	290,000	305,000	250,000	25,000
Germany	235,000	236,000	234,000	233,000
England	213,000	193,000	195,000	188,000
Belgium	182,000	225,000	176,000	162,000
Argentine Republic	246,000	105,000	149,000	120,000
Other countries (principally French colonies and dependencies)	620,000	601,000	617,000	300,000
Total	1,786,000	1,665,000	1,621,000	1,028,000

This does not cover case or bottled goods, and, as will be seen, the Swiss share of imports was, for the above years, 16.24 per cent, 18.3 per cent, 16.44 per cent, and 2.43 per cent, respectively, of the total French wine exports. Switzerland, although a small country, was once the largest consumer of French wines.

The reason for this is not that Swiss people drink less wine or have increased their own wine production, but simply that the high prohibitory tariff put on French wines is retaliatory. Of course, other countries have profited by this controversy, customs duties on wines from favored nations being only 3.50 francs (70 cents) per 100 kilograms (220.46 pounds), and imports from German, Italian, and Spanish sources show a marked increase.

Now would be the time for our California wine producers to make an effort to secure part of this trade.

Our light wines and clarets compare favorably with the wines of other countries, and our heavier wines are just the article needed for blending purposes.

Wines in California are very cheap. Vineyardists complain of the extremely low figures obtainable, and threaten to pull up their vines and destroy their vineyards. Why not form a syndicate, send over one of their own men, ship wine to a seaport in Europe, keep it there in bonded warehouses until sold, and from there work Switzerland and other countries in Europe that will buy our wines?

Without efforts, however, no wine or other American product can be placed in this or any other country.

New Financial Policy in Santo Domingo.—Under date of Santo Domingo, June 6, Vice-Consul Juan A. Read, reports the following changes in the financial policy of the Dominican Republic:

The Dominican Government has, by a law which went into effect on the 1st of the present month (June), made the following changes in its financial policy:

The gold dollar is established as the legal monetary unit.

The revenues of the Government are required to be paid in gold.

Import duties, formerly 65 per cent in Mexican silver, are established at 50 per cent in gold.

Port charges, formerly $2.65 (Mexican silver) per ton of register, are established at $2.65 in gold.*

The foreign debt has been reduced to a gold basis, and the revenue destined to its liquidation has been established at 1½ per cent in gold, instead of, as formerly, 2 per cent in Mexican silver.

The Government at present receives the Mexican silver dollars as equivalent to 50 cents in gold.

German-Spanish Tariff War.—Under date of May 30, Consul John D. Hall, of San Juan, Puerto Rico, transmits the following to the Department of State:

Upon the failure of the pending negotiations for a new commercial treaty between Germany and Spain, the captain-general of this island received a cablegram from Madrid, on the 28th instant, to change at once and without notice the classification of all German imports into Puerto Rico from the second class of the *aranceles de aduana* (articles of customs) to the first class. This change makes a further discrimination against all German imports into Puerto Rico of almost 10 per cent on the average, in addition to the duties which had been imposed under the second class of the customs articles. In some exceptional cases, the increase of duty is far more. For instance, in the article of paper—large quantities of which have been imported from Germany—the rate of duty is increased from 15 to 20 per cent; writing paper, which formerly paid $7.20 per 100 kilograms, pays $9.20 per 100 kilograms by the change. In some articles of luxury, like cologne, the increase is 33⅓ per cent. It is unnecessary to say, perhaps, that Germany has retaliated by imposing a duty of 50 per cent upon all imports into Germany from Spain and its possessions.

An Enemy to Wheat in France.—Commercial Agent Griffin writes from Limoges, June 2:

The promise of an excellent wheat crop has been menaced in some departments of France by an insect known as the "Chlorops." The farmers in many large sections in the Vendée, in the north, and in Brittany are anxious about the grain on account of the havoc made by this insect; in some places, the harvest is entirely compromised. The "Chlorops" was not seen in France until this season, and the ravages made by it have frightened the farmers, who are greatly discouraged at finding a new enemy to their crops. The standing grain is in such a condition that little can be done to arrest the destruction of the fields attacked, and any remedies, if known, could not be applied. A curious fact has been developed, namely, that when oats are sown with the wheat, as is the custom in some localities where the grain is

* The vice-consul has been communicated with relative to this paragraph, as his statement indicates an increase instead of a reduction in the port charges, due to the greater value of gold.

grown for cattle, the insect has not attacked the fields. Some agriculturists recommend this method as a positive remedy against this fly.

Dr. Paul Marchal, chief of the agricultural station in the Vendée, makes the following remarks on the subject: "The insect that has attacked the wheat is called the 'Chlorops;' it is a little yellow fly that can be seen frequently flying about the fields and gardens during the month of June. The insects breed during the month of May, the female laying her eggs at the base of the stalks; when the larvæ are hatched out, they bury themselves in the stalks and feed on the plant; they are transformed into red pupæ, from which a second generation of 'Chlorops' are formed; this latter generation is the one to be dreaded, because the females lay their eggs in September, and the larvæ from them pass the winter in the ground near the stalks ready to eat it is soon as spring opens. The evolution of this insect, although not fully known, is sufficiently well established to enable the entomologist to state the above facts. How to exterminate the 'Chlorops,' or to prevent its ravages, is not so well understood. It is recommended that the fields should be visited just before the grain is cut, and all the stalks attacked pulled up. It is easy to recognize them, because, while all the perfect wheat is yellow, these remain green; the bolls are swollen, but contain no grain."

From all the information that can be obtained about this insect, and the ravages that it works in the grain fields, the following is evident: The means employed by the French cultivators, on account of the cheap labor and limited acreage, would be impracticable in the United States; no large farmer could or would ever think of weeding out a wheat field, or pulling up the diseased stalks. It is further noticeable that where there is a regular rotation of crops the liability to attacks from the "Chlorops" is lessened. Another excellent preventative is a liberal supply of good fertilizers; the plant thus becomes hardy and resistant.

Different authorities describe several varieties of this insect, some of which closely resemble the "Cecidomyia" (Hessian fly) so well known and greatly feared in the United States.

Important studies are now being made by the Government entomologists, and the results of their experiments will be given to the Department as soon as obtainable.

Finances of the Manchester Ship Canal.—The following statistics have been received from Consul Grinnell (Manchester, June 9), in reply to a Department instruction, prepared at the request of a Philadelphia city commission now inquiring into a proposition for a ship canal:

I have to acknowledge the receipt of your instruction to report upon the operations of the Manchester Ship Canal since its opening, *i. e.*, "statistics covering the commercial success or nonsuccess of the canal." This morning (Saturday, June 9), the following figures have, for the first time, been given out by Mr. J. K. Bythell, chairman of the traffic and rates committee of the ship canal:

"The traffic on the ship canal for the five months ending May was as follows:

"Merchandise in sea-going vessels (211,915 tons)	£28,868=	$140,472
"Merchandise in barges (63,785 tons)	919=	4,472
"Ships' dues	395=	1,922
"Passengers (323,056)	3,469=	16,880
"Cattle (979)	50=	243
"Total	33,701=	163,989

"As regards working expenses, it may be said, broadly, that the revenue for the five months will more than cover (1) all the expenses connected with the traffic, including wages, salaries, and stores; (2) rates; and (3) a full proportion of head office expenses during the same period. Maintenance is not included. Until the works are more complete, I take it that all outlay on works will be a charge against capital."

Suez Canal Traffic.—The following statement, showing the traffic through the Suez Canal during the first quarter of 1894, has been prepared in the Bureau of Statistics from monthly statements transmitted under date of April 13 by the United States consular agent at Suez:

Nationality.	Number of steamers.	Tons, net.	Traffic receipts.
American	*2	1,045.26	$1,479
Austrian	22	51,823.54	93,125
British	627	1,552,517.99	2,824,816
Dutch	46	83,915.44	154,634
French	43	112,472.28	215,581
German	72	155,493.09	282,898
Italian	15	27,683.99	50,841
Norwegian	4	8,542.82	15,377
Russian	5	11,017.72	25,304
Spanish	7	19,983.88	38,061
Turkish	7	8,833.01	19,970
Total	850	2,033,329.02	3,722,086

* Yachts.

Exports of British Tin Plates.—Under date of April 1, Consul Howells, of Cardiff, transmitted the following to the Department of State:

There were 25,422 tons of tin plates and sheets exported during the month just closed (March), compared with 42,473 tons in March, 1893, and 36,005 in the same month of 1892. The respective values were: March, 1894, £314,312 ($1,529,443); March, 1893, £557,113 ($2,710,911); March, 1892, £493,227 ($2,400,043). Compared with the corresponding three months in 1893, there was a falling off in quantity of 22,500 tons, and in value of £349,085 ($1,698,648). During March, the United States took only 16,907 tons of tin plates and sheets, contrasted with 31,334 tons in March, 1893, and 23,789 tons in March, 1892, the respective values being £204,257 ($993,915), £410,139 ($1,995,736), and £324,653 ($1,579,615). While 4,365 tons of tin plates were exported to Russia in March, 1892, and 3,630 tons in March of last year, only 166 tons were sent in March, 1894, and there are also diminished exports to Germany, France, Portugal, Italy, Brazil, and the Argentine Republic. On the other hand, increases are shown in the following instances: Holland, Roumania, British East Indies, Australasia, British North America, and "other countries." The value of tin plates sent to Russia during last month was only £2,110 ($10,267), compared with £44,372 ($215,914) in March, 1893, and £55,636 ($270,724) in March, 1892.

Carriage and Furniture Leathers in Japan.—Consul Smithers writes from Hiogo, March 21:

Carriage leather is mostly used in the construction of railroad cars, and is imported from England and the Continent by the Japanese Government, which owns nearly all the railways in Japan. The car shops are principally situated in Tokyo, and as the Government imports of leather are not found in the customs returns, I am unable to state the quantity imported.

Furniture leather is imported from England under the name of "roans," in two colors, scarlet and green. The China and Japan Trading Company, at this port imported 300 dozen

last year, which cost in England $6.02 per dozen, less 5 per cent discount. The total imports of this leather for the year only amounted to 600 dozen.

Roller skins are used in spinning mills, and also come from England. The size of skins runs 29 by 22 inches and 26 by 22 inches, and the home cost is from $3.65 to $6.02 per dozen. The business in these skins will increase very much, owing to the many new mills now being erected.

The natives are now producing considerable quantities of fine leather for traveling bags, purses, etc., for home consumption, and are also making tanned ox and cow hides, which are exported to Germany.

Food Prices in Hesse.—Under date of April 6, Commercial Agent Smith, of Mayence, transmitted the following average prices of the leading articles of food in Hesse in 1893, compared with those of 1892, as officially published by the Hessian government:

Articles.	1893.	1892.	Articles.	1893.	1892.
Wheat.....per 100 pounds...	$1.80	$2.13	Veal:		
Rye.....do.....	1.60	2.00	With bone.....per pound...	$0.12	$0.12½
Barley.....do.....	1.75	1.75	Without bone.....do.....	.15½	.16½
Oats.....do.....	1.28	1.58	Mutton:		
Potatoes.....do.....	.56	.71	With bone.....do.....	.11½	.12½
Pease.....do.....	5.66	3.04	Without bone.....do.....	.14½	.15½
Beans.....do.....	2.72	2.91	Pork:		
Hay.....do.....	1.28	.73	With bone.....do.....	.13½	.13½
Straw.....do.....	.77	.53	Without bone.....do.....	.16½	.16½
Beef:			Wheat flour.....do.....	.03½	.04
With bone.....per pound...	.13½	.14½	Rye flour.....do.....	.02½	.03½
Without bone.....do.....	.17½	.18½	Bread of wheat and rye.....do.....	.02½	.03½
Cow flesh:			Rye bread.....do.....	.02½	.02½
With bone.....do.....	.11½	.13	Butter.....do.....	.23½	.23
Without bone.....do.....	.14	.15½	Coffee.....do.....	.34½	.34½

The excessive drought made hay and straw much dearer in 1893 than in 1892, but made the price of meats less, the farmers being forced to sell or slaughter the stock on account of the scarcity of fodder.

The Kioto Industrial Exposition.—Consul Smithers, of Hiogo, sends the following, under date of March 22:

The fourth internal exposition of industry organized by the Japanese Government will be held at Kioto during 1895, opening on April 1 and continuing till July 31. The regulations regarding the exhibition were published in the Official Gazette of September 3, 1893, and give details with reference to the articles to be exhibited and the manner of conducting the exhibition. Every article admitted must be of Japanese production, but foreign manufactures and products may be exhibited for reference or for the purpose of comparison with native exhibits, provided they are not too numerous or bulky. Under this regulation, the Japanese manufacturer will doubtless seek to show his skill in imitating articles of foreign origin, and, in some cases, it may be, in improving upon them. Foreign articles thus admitted are not allowed to be sold during the exhibition.

The exhibits are divided into seven classes as follows: Manufactures, fine arts, agriculture (including forests and gardens), water products, education and science, mines and mining, and machinery. Six buildings are being erected for the exhibition, and a zoölogical garden will be open from May 1 to June 9.

Kioto is situated about 50 miles from Hiogo, and is within this consular district. It is the old capital of the Empire, and is located in the most beautiful and picturesque part of Japan. The forthcoming exhibition will undoubtedly be the most interesting of any heretofore held, and will afford a fine opportunity of witnessing the developments in the industries of new Japan.

English Buyers of American Wool.—Under date of June 5, Consul Meeker, of Bradford, transmits the following:

Upon the publication in the local newspapers of extracts from the report on "American Wool in Bradford," taken from the Advance Sheets of CONSULAR REPORTS No. 165, p. 202, I received several inquiries from local merchants. The firm of Holmstrom, Tolson & Co., Midland Buildings, Forster Square, Bradford (cable address, "Tolson, Bradford") advised me in writing that they would be obliged to me if I would mention their name as likely buyers from my countrymen who have wool to sell. They would like to correspond with any dealer having wool for sale as to lowest prices on all grades of wool, especially on "pulled," or skin, wool.

Revolutionary War Debts of Venezuela.—Under date of February 20, Consul Hanna, of La Guayra, transmits the following information to the Department:

By a decree of the Government of Venezuela, which appears in the Gaceta Oficial of February 19, the Government, finding itself unable to pay war debts arising out of the late revolution, amounting to 99,850,000 bolivars, states that it will issue bonds for the above amount, which will be given to persons holding claims against the Government for damages, losses, etc., resulting from the revolution. These bonds will bear no interest, and as only 83,333.33 bolivars will be paid per month, or 1,000,000 bolivars per annum, it will require more than ninety-nine years to meet the entire list of claims and pay the whole issue of bonds. The consul adds: "I deem the above of interest, as there are Americans who claim to have sustained heavy losses resulting from said revolution."

Canadian Products in Haiti.—Under date of June 5, Consul Goutier transmits the following list of articles landed at Cape Haitien on May 14 from the British steamer *Beta*, from Halifax:

Alewives, 190 barrels and 30 half barrels; apples, 25 barrels; brooms, 15 dozen; beer (stout), 25 barrels; codfish, 155 drums; boneless codfish, 5 boxes; flour, 225 barrels; hay, 57 bales; smoked herrings, 400 boxes; mackerel, 87 barrels and 30 half barrels; pails, 15 dozen; potatoes, 30 barrels and 100 boxes; whisky, 8 cases.

Tobacco Tax in Egypt.—Consul-General Penfield writes to the Department from Cairo, under date of May 3, that the following alteration of duty on manufactured tobacco entering Egyptian territory has been made:

On May 1, by Khedivial decree, the Egyptian Government raised the duty on all manufactured tobacco entering the country from 20 piasters ($1) to 25 piasters ($1.25) per kilogram (2.2046 pounds) and the law went into immediate effect. It not only increases the duty on finished goods, but on tobacco in any stage of manufacture, however slight.

The decree was promulgated in the interest of Egyptian cigarette manufacturers, and is intended to yield them some protection against the newly organized "export regie" of Constantinople, which threatened the prosperity of the cigarette trade of Egypt because of its ability to introduce manufactured cigarettes at the same rate of duty as the Egyptian manufacturers paid on leaf tobacco.

The import duty of 20 piasters ($1) on unmanufactured tobacco, and the drawback of 10 piasters (50 cents) per kilogram on exported cigarettes remain unaltered. (See previous report of Consul-General Penfield—"Egypt's Cigarette Industry"—No. 164, May, 1894, p. 29.).

Commercial Stagnation in Cochin China.—Under date of May 5, Commercial Agent Schneegans, of Saigon, reports to the Department as follows:

We are experiencing a very difficult state of affairs, finding it nearly impossible to transact any business with Europe, the banks refusing to buy our documentary drafts because of their inability to procure Mexican dollars. I referred to this condition of affairs in previous reports, but, unfortunately, the situation has become worse. Business in this quarter is at a standstill. In spite of this, the price of paddy is stationary, and is not likely to decrease, as the arrivals from the interior are very light. The rice exports from January 1 to May 5, 1894, amounted to 540,432,000 pounds, against 653,504,933 pounds for the same period in 1893.

American Flour in Cochin China.—Under date of May 5, Commercial Agent Schneegans, of Saigon, states that the imports of American flour into Cochin China during the year 1893, amounted to 1,944,074 kilograms, or about 2,143 tons, and was received via Hongkong and Singapore.

Sicilian Essential Oils (correction).—In the CONSULAR REPORTS for May, No. 164, on page 72, question 3 of Consul Caughy's letter, addressed to the manufacturers of essential oils in Messina, reads:

(3) To what country are the best grades of essential oils exported? If the grades exported to the United States are superior to those exported to other countries, please state the cause.

The word "superior" in this question should have been printed "inferior."

Mining Industry of Austria (correction).—The Department having called his attention thereto, Vice-Consul-General Mason, of Vienna, desires to correct that portion of the report of the consul-general which comes under the head of "Mining Industry," on page 693, of CONSULAR REPORTS for April (No. 163). The second and third lines from the foot of the page should read as follows: "The total number of workmen employed was 121,876, of whom 108,302 were men, 7,172 women, and 6,402 minors."

Consular Reports Transmitted to Other Departments.—The following reports (originals or copies) were referred during the month of June to other Departments for publication or for proper action thereon:

Consular officer reporting.	Date.	Subject.	Department to which referred.
E. Schneegans, Saigon	April 7, 1894	Rice market of Saigon	Department of Agriculture.
Do	April 21, 1894	do	Do.
E. Germain, Zurich	May 10, 1894	Agriculture in the canton of Zurich.	Do.
Do	May 28, 1894	Swiss crop outlook	Do.
C. T. Grellet, Algiers	Jan. 31, 1894	Peanuts and peanut oil	Do.
J. M. Wiley, Bordeaux	May 30, 1894	do	Do.
J. E. Neal, Liverpool	Feb. 14, 1894	do	Do.
C. M. Thomas, Marseilles	April 24, 1894	do	Do.
H. J. Sommer, Bombay	April 21, 1894	do	Do.
W. S. Hollis, Mozambique	Mar. 1, 1894	do	Do.
P. Strickland, Gorée-Dakar	Mar. 10, 1894	do	Do.
J. D. Reid, Dunfermline	April 13, 1894	Agriculture in Great Britain	Do.
L. S. Reque, Rotterdam	May 15, 1894	Cultivation of flax in Holland	Do.
L. Stern, Bamberg	April 9, 1894	Basket-ware industry of Upper Franconia.	Do.
T. Huston, Paso del Norte	April 24, 1894	Improved stock for Mexico	Do.
J. J. Peterson, Tegucigalpa	April 18, 1894	Coffee culture in Honduras	Do.
E. Schneegans, Saigon	May 5, 1894	Rice market of Saigon	Do.
J. M. Crawford, St. Petersburg	June 1, 1894	Probable extension of the wheat area in Russia.	Do.
J. T. Lewis, Rio de Janeiro	April 26, 1894	Export of dyewoods to the United States.	Do.
R. P. McDaniel, Bahia	June 4, 1894	do	Do.
J. Spaight, Demerara	Feb. 5, 1894	do	Do.
J. Leitch, Belize	Mar. 6, 1894	do	Do.
E. P. Pellet, Barranquilla	Feb. 5, 1894	do	Do.
C. I. Croft, Cartagena	Feb. 21, 1894	do	Do.
J. M. Mitchell, San Pedro Sula	April 24, 1894	do	Do.
A. de Cima, Mazatlan	Jan. 31, 1894	do	Do.
R. Anderson, Chihuahua	Feb. 5, 1894	do	Do.
C. Schaefer, Veracruz	Feb. 27, 1894	do	Do.
J. T. Hyatt, Santiago de Cuba	Feb. 10, 1894	do	Do.
F. G. Gade, Bergen	April 25, 1894	Norwegian fisheries	Fish Commission.

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Full directions for binding the Consular Reports are given in No. 131, page 663.

VALUES OF FOREIGN COINS.

The following statements show the valuation of foreign coins, as given by the Director of the United States Mint and published by the Secretary of the Treasury, in compliance with the first section of the act of March 3, 1873, viz: "That the value of foreign coins, as expressed in the money of account of the United States, shall be that of the pure metal of such coin of standard value," and that "the value of the standard coins in circulation of the various nations of the world shall be estimated annually by the Director of the Mint, and be proclaimed on the 1st day of January by the Secretary of the Treasury."

In compliance with the foregoing provisions of law, annual statements were issued by the Treasury Department, beginning with that issued on January 1, 1874, and ending with that issued on January 1, 1890. Since that date, in compliance with the act of October 1, 1890, these valuation statements have been issued quarterly, beginning with the statement issued on January 1, 1891.

These estimates "are to be taken (by customs officers) in computing the value of all foreign merchandise made out in any of said currencies, imported into the United States."

The following statements, running from January 1, 1874, to April 1, 1894, have been prepared to assist in computing the proper values in American money of the trade, prices, values, wages, etc., of and in foreign countries, as given in consular and other reports. The series of years are given so that computations may be made for each year in the proper money values of such year. In hurried computations, the reductions of foreign currencies into American currency, no matter for how many years, are too often made on the bases of latest valuations. When it is taken into account that the ruble of Russia, for instance, has fluctuated from 77.17 cents in 1874 to 37.2 cents in April, 1894, such computations are wholly misleading. All computations of values, trade, wages, prices, etc., of and in the "fluctuating-currency countries" should be made in the values of their currencies in each year up to and including 1890, and in the quarterly valuations thereafter.

To meet typographical requirements, the quotations for the years 1876, 1877, 1879, 1881, and 1882 are omitted, these years being selected as showing the least fluctuations when compared with years immediately preceding and following.

To save unnecessary repetition, the estimates of valuations are divided into three classes, viz: (A) countries with fixed currencies, (B) countries with fluctuating currencies, and (C) quarterly valuations of fluctuating currencies.

A.—*Countries with fixed currencies.*

Countries.	Standard.	Monetary unit.	Value in terms of United States gold.	Coins.
Argentine Republic*	Gold and silver	Peso	$0.96,5	Gold—Argentine ($4.82,4) and ½ Argentine; silver—peso and divisions.
Austria-Hungary†	Gold	Crown	.20,3	Gold—20 crowns ($4.05,2) and 10 crowns.
Belgium	Gold and silver	Franc	.19,3	Gold—10 and 20 franc pieces; silver—5 francs.
Brazil	Gold	Milreis	.54,6	Gold—5, 10, and 20 milreis; silver—½, 1, and 2 milreis.
Chile‡	Gold and silver	Peso	.91,2	Gold—escudo ($1.82,4), doubloon ($4.56,1), and condor ($9.12,8); silver—peso and divisions.
Cuba	do	do	.92,6	Gold—doubloon ($5.01,7); silver—peso.
Denmark	Gold	Crown	.26,8	Gold—10 and 20 crowns.
Egypt	do	Pound (100 piasters).	4.94,3	Gold—10, 20, 50, and 100 piasters; silver—1, 2, 10, and 20 piasters.
Finland	do	Mark	.19,3	Gold—10 and 20 marks ($1.93 and $3.85,9).
France	Gold and silver	Franc	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Germany	Gold	Mark	.23,8	Gold—5, 10, and 20 marks.
Great Britain	do	Pound sterling	4.86,6½	Gold—sovereign (pound sterling) and half sovereign.
Greece	Gold and silver	Drachma	.19,3	Gold—5, 10, 20, 50, and 100 drachmas; silver—5 drachmas.
Haiti	do	Gourde	.96,5	Silver—gourde.
Italy	do	Lira	.19,3	Gold—5, 10, 20, 50, and 100 lire; silver—5 lire.
Liberia	Gold	Dollar	1.00	
Netherlands‡	Gold and silver	Florin	.40,2	Gold—10 florins; silver—½, 1, and 2½ florins.
Portugal	Gold	Milreis	1.08	Gold—1, 2, 5, and 10 milreis.
Spain	Gold and silver	Peseta	.19,3	Gold—25 pesetas; silver—5 pesetas.
Sweden and Norway	Gold	Crown	.26,8	Gold—10 and 20 crowns.
Switzerland	Gold and silver	Franc	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Turkey	Gold	Piaster	.04,4	Gold—25, 50, 100, 200, and 500 piasters.
Venezuela	Gold and silver	Bolivar	.19,3	Gold—5, 10, 20, 50, and 100 bolivars; silver—5 bolivars.

* In 1874 and 1875 the gold standard prevailed in the Argentine Republic. Its currency does not appear in the statements again until 1883, when the double standard prevailed, and the peso attained a fixed value of 96.5 cents.

† On reference to the table of "fluctuating currencies," it will be seen that Austria had the silver standard up to and including the quarter ending July 1, 1892. The next quarter (October 1) inaugurated the gold standard (*see* note under table of "fluctuating currencies").

‡ The gold standard prevailed in Chile until January 1, 1890. The value of the peso has been the same under both standards.

‡ The Netherlands florin, as will be seen in the "fluctuating" table, became fixed in value (40.2 cents) in 1880.

B.—*Countries with fluctuating currencies, 1874–'90.*

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1874.	1875.	1878.	1880.	1883.	1884.
Austria-Hungary*	Silver	Florin	$0.47,6	$0.45,3	$0.45,3	$0.41,3	$0.40,1	$0.39,8
Bolivia	do	Dollar until 1880; boliviano thereafter.	.96,5	.96,5	.96,5	.83,6	.81,2	.80,6
Central America	do	Peso	.96,5	.91,8	.91,8	.83,6	.....	.....
China	Silver	Haikwan tael	1.61	1.61	.....	.....	.....	.....
Colombia	do	Peso	.96,5	.96,5	.96,5	.83,6	.81,2	.80,6
Ecuador	do	do	.96,5	.91,8	.91,8	.83,6	.81,2	.80,6
Egypt†	Gold	Pound (100 piasters).	.....	.....	4.97,4	4.97,4	4.90	4.90
India	Silver	Rupee	.45,8	.43,6	.43,6	.39,7	.38,6	.38,3
Japan	Gold	Yen	.99,7	.99,7	.99,7	.99,7	.....	.....
	Silver		.....	.....	.....	.....	.87,6	.86,9
Mexico	do	Dollar	1.04,7½	.99,8	.99,8	.90,9	.88,2	.87,5
Netherlands‡	Gold and silver	Florin	.40,5	.38,5	.38,5	.40,2	.....	.....
Peru	Silver	Sol	.92,5	.91,8	.91,8	.83,6	.81,2	.80,6
Russia	do	Ruble	.77,17	.73,4	.73,4	.66,9	.65	.64,5
Tripoli	do	Mahbub of 20 piasters.	.87,09	.82,9	.82,9	.74,8	.73,3	.72,7

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1885.	1886.	1887.	1888.	1889.	1890.
Austria-Hungary*	Silver	Florin	$0.39,3	$0.37,1	$0.35,9	$0.34,5	$0.33,6	$0.42
Bolivia	do	Dollar until 1880; boliviano thereafter.	.79,5	.75,1	.72,7	.69,9	.68	.85
Central America	do	Peso	.....	.....	.....	.69,9	.68	.85
Colombia	do	do	.79,5	.75,1	.72,7	.69,9	.68	.85
Ecuador	do	do	.79,5	.75,1	.72,7	.69,9	.68	.85
Egypt†	Gold	Pound (100 piasters).	4.90	4.90	4.94,3	4.94,3	4.94,3	4.93,3
India	Silver	Rupee	.37,8	.35,7	.34,6	.33,2	.32,3	.40,4
Japan	Gold	Yen	.....	.....	.99,7	.99,7	.99,7	.99,7
	Silver		.85,8	.81	.78,4	.75,3	.73,4	.92,7
Mexico	do	Dollar	.86,4	.81,6	.79	.75,9	.73,9	.92,3
Peru	Silver	Sol	.79,5	.75,1	.72,7	.69,9	.68	.85
Russia	do	Ruble	.63,6	.60,1	.58,2	.55,9	.54,4	.68
Tripoli	do	Mahbub of 20 piasters.	.71,7	.67,7	.65,6	.63	.61,4	.76,7

* The silver standard prevailed in Austria-Hungary up to 1892. The law of August 2 of that year (*see* CONSULAR REPORTS, No. 147, p. 623) established the gold standard.

† The Egyptian pound became fixed in value at $4.94,3 in 1887.

‡ The Netherlands florin fluctuated up to the year 1880, when it became fixed at 40.2 cents.

C.—*Quarterly valuations of fluctuating currencies, 1891–'94.*

Countries.	Monetary unit.	1891.				1892.			
		Jan. 1.	April 1.	July 1.	Oct. 1.	Jan. 1.	April 1.	July 1.	Oct. 1.
Austria-Hungary *	Gold crown	.....	.....	.....	.....	.....	.....	.....	$0.20,3
	Silver florin	$0.38,1	$0.36,3	$0.36,3	$0.35,7	$0.34,1	$0.32,8	$0.32	.....
Bolivia	Silver boliviano	.77,1	.73,5	.73,6	.72,3	.69,1	.66,5	.64,9	.62,6
Central America	Silver peso	.77,1	.73,5	.73,6	.72,3	.69,1	.66,5	.64,9	.62,6
China†	Shanghai tael	1.13,9	1.08,5	1.08,7	1.06,8	1.02,1	.98,2	.95,8	.92
	Haikwan tael	1.27	1.20,9	1.21	1.18,9	1.13,7	1.09,3	1.06,7	1.01,3
Colombia	Silver peso	.77,1	.73,5	.73,6	.72,3	.69,1	.66,5	.64,9	.62,6
Ecuador	....do	.77,1	.73,5	.73,6	.72,3	.69,1	.66,5	.64,9	.62,6
India	Silver rupee	.36,6	.34,9	.35	.34,3	.32,8	.31,6	.30,8	.29,3
Japan‡	Silver yen	.83,1	.79,2	.79,3	.77,9	.74,5	.71,6	.69,9	.66,4
Mexico	Silver dollar	.83,7	.80	.80	.78,5	.75	.72,2	.70,4	.66,9
Peru	Silver sol	.77,1	.73,5	.73,6	.72,3	.69,1	.66,5	.64,9	.62,6
Russia§	Silver ruble	.61,7	.58,8	.58,8	.57,8	.55,3	.53,1	.51,9	.49,2
Tripoli	Silver mahbub	.69,5	.66,3	.66,4	.65,2	.62,3	.60	.58,5	.55,5
Venezuela ‖	Silver bolivar	.15,4	.14,7	.14,7	.14,5	.13,8	.13,3	.13	.12,3

Countries.	Monetary unit.	1893.				1894.	
		Jan. 1.	April 1.	July 1.	Oct. 1.	Jan. 1.	April 1.
Bolivia	Silver boliviano	$0.61,3	$0.61	$0.60,4	$0.53,1	$0.51,6	$0.46,5
Central America	Silver peso	.61,3	.61	.60,4	.53,1	.51,6	.46,5
China†	Shanghai tael	.90,6	.90,1	.89,2	.78,4	.76,2	.68,6
	Haikwan tael	1.01	1.00,4	.99,4	.87,4	.84,9	.76,5
Colombia	Silver peso	.61,3	.61	.60,4	.53,1	.51,6	.46,5
Ecuador	....do	.61,3	.61	.60,4	.53,1	.51,6	.46,5
India	Silver rupee	.29,2	.29	.28,7	.25,2	.24,5	.22,1
Japan‡	Silver yen	.66,1	.65,8	.65,1	.57,3	.55,6	.50,1
Mexico	Silver dollar	.66,6	.66,2	.65,6	.57,7	.56	.50,5
Peru	Silver sol	.61,3	.61	.60,4	.53,1	.51,6	.46,5
Russia§	Silver ruble	.49,1	.48,8	.48,3	.42,5	.41,3	.37,2
Tripoli	Silver mahbub	.55,3	.55	.54,5	.47,9	.46,5	.42,9

* Austria-Hungary had the silver standard up to August, 1892 (*see* note to "fluctuating" table B).

† China (silver). The Haikwan tael is the customs tael, and the Shanghai tael that used in trade. Consul-General Denny (Consular Reports No. 43, p. 516) says: "The value of the tael varies in the different ports of China, and every port has two taels, one being the Government, or Haikwan, tael, in which all duties have to be paid, and the other the market tael, the former exceeding the latter by some 11 per cent."

‡ Gold is the nominal standard in Japan, but silver is practically the standard. The fixed value of the gold yen is 99.7 cents.

§ The gold ruble is valued at 77.2 cents. Silver is the nominal standard, but paper is the actual currency, and its depreciation is measured by the gold standard.

‖ The Venezuelan bolivar became fixed in value (19.3 cents) on January 1, 1892.

FOREIGN WEIGHTS AND MEASURES.

The following table embraces only such weights and measures as are given from time to time in CONSULAR REPORTS and in Commercial Relations:

Foreign weights and measures, with American equivalents.

Denominations.	Where used.	American equivalent.
Almude	Portugal	4.428 gallons.
Ardeb	Egypt	7.6907 bushels.
Are	Metric	0.02471 acre.
Arobe	Paraguay	25 pounds.
Arratel or libra	Portugal	1.011 pounds.
Arroba (dry)	Argentine Republic	25.3175 pounds.
Do	Brazil	32.38 pounds.
Do	Cuba	25.3664 pounds.
Do	Portugal	32.38 pounds.
Do	Spain	25.36 pounds.
Do	Venezuela	25.4024 pounds.
Arroba (liquid)	Cuba, Spain, and Venezuela	4.263 gallons.
Arshine	Russia	28 inches.
Arshine (square)	do	5.44 square feet.
Artel	Morocco	1.12 pounds.
Baril	Argentine Republic and Mexico	20.0787 gallons.
Barrel	Malta (customs)	11.4 gallons.
Do	Spain (raisins)	100 pounds.
Berkovet	Russia	361.12 pounds.
Bongkal	India	832 grains.
Bouw	Sumatra	7,096.5 square meters.
Bu	Japan	0.1 inch.
Butt (wine)	Spain	140 gallons.
Caffiso	Malta	5.4 gallons.
Candy	India (Bombay)	529 pounds.
Do	India (Madras)	500 pounds.
Cantar	Morocco	113 pounds.
Do	Syria (Damascus)	575 pounds.
Do	Turkey	124.7036 pounds.
Cantaro (Cantar)	Malta	175 pounds.
Carga	Mexico and Salvador	300 pounds.
Catty	China	1.333⅓ (1⅓) pounds.
Do	Japan	1.31 pounds.
Do	Java, Siam, Malacca	1.35 pounds.
Do	Sumatra	2.12 pounds.
Centaro	Central America	4.2631 gallons.
Centner	Bremen and Brunswick	117.5 pounds.
Do	Darmstadt	110.24 pounds.
Do	Denmark and Norway	110.11 pounds.
Do	Nuremberg	112.43 pounds.
Do	Prussia	113.44 pounds.
Do	Sweden	93.7 pounds.
Do	Vienna	123.5 pounds.
Do	Zollverein	110.24 pounds.
Do	Double or metric	220.46 pounds.
Chih	China	14 inches.
Coyan	Sarawak	3,098 pounds.
Do	Siam (Koyan)	2,667 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalent.
Cuadra	Argentine Republic	4.2 acres.
Do	Paraguay	78.9 yards.
Do	Paraguay (square)	8.077 square feet.
Do	Uruguay	Nearly 2 acres.
Cubic meter	Metric	35.3 cubic feet.
Cwt. (hundredweight)	British	112 pounds.
Desiatine	Russia	2.6997 acres.
Do	Spain	1.599 bushels.
Drachme	Greece	Half ounce.
Dun	Japan	1 inch.
Egyptian weights and measures	(*See* CONSULAR REPORTS No. 144.)	
Fanega (dry)	Central America	1.5745 bushels.
Do	Chile	2.575 bushels.
Do	Cuba	1.599 bushels.
Do	Mexico	1.54728 bushels.
Do	Morocco	Strike fanega, 70 lbs. full fanega, 128 lbs.
Do	Uruguay (double)	7.776 bushels.
Do	Uruguay (single)	3.888 bushels.
Do	Venezuela	1.599 bushels.
Fanega (liquid)	Spain	16 gallons.
Feddan	Egypt	1.03 acres.
Frail (raisins)	Spain	50 pounds.
Frasco	Argentine Republic	2.5096 quarts.
Do	Mexico	2.5 quarts.
Fuder	Luxemburg	264 17 gallons.
Garnice	Russian Poland	0.88 gallon.
Gram	Metric	15.432 grains.
Hectare	do	2.471 acres.
Hectoliter:		
Dry	do	2.838 bushels.
Liquid	do	26.417 gallons.
Joch	Austria-Hungary	1.422 acres.
Ken	Japan	4 yards.
Kilogram (kilo)	Metric	2.2046 pounds.
Kilometer	do	0.621376 mile.
Klafter	Russia	216 cubic feet.
Kota	Japan	5.13 bushels.
Korree	Russia	3.5 bushels.
Last	Belgium and Holland	85.134 bushels.
Do	England (dry malt)	80.52 bushels.
Do	Germany	2 metric tons (4,4[illegible] pounds).
Do	Prussia	112.29 bushels.
Do	Russian Poland	113⅓ bushels.
Do	Spain (salt)	4,760 pounds.
League (land)	Paraguay	4,633 acres.
Li	China	2,115 feet.
Libra (pound)	Castilian	7,100 grains (troy).
Do	Argentine Republic	1.0127 pounds.
Do	Central America	1.043 pounds.
Do	Chile	1.014 pounds.
Do	Cuba	1.0161 pounds.
Do	Mexico	1.01465 pounds.
Do	Peru	1.0143 pounds.
Do	Portugal	1.011 pounds.
Do	Uruguay	1.0143 pounds.
Do	Venezuela	1.0161 pounds.
Liter	Metric	1.0567 quarts.
Livre (pound)	Greece	1.1 pounds.
Do	Guiana	1.0791 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalent.
Load	England (timber)	Square, 50 cubic feet; unhewn, 40 cubic feet; inch planks, 600 superficial feet.
Manzana	Costa Rica	1⅘ acres.
Marc	Bolivia	0.507 pound.
Maund	India	82⅔ pounds.
Meter	Metric	39.37 inches.
Mil	Denmark	4.68 miles
Do	Denmark (geographical)	4.61 miles.
Morgen	Prussia	0.63 acre.
Oke	Egypt	2.7225 pounds.
Do	Greece	2.84 pounds.
Do	Hungary	3.0817 pounds.
Do	Turkey	2.85418 pounds.
Do	Hungary and Wallachia	2.5 pints.
Pic	Egypt	21¼ inches.
Picul	Borneo and Celebes	135.64 pounds.
Do	China, Japan, and Sumatra	133⅓ pounds.
Do	Java	135.1 pounds.
Do	Philippine Islands (hemp)	139.45 pounds.
Do	Philippine Islands (sugar)	140 pounds.
Pie	Argentine Republic	0.9478 foot.
Do	Castilian	0.91407 foot.
Pik	Turkey	27.9 inches.
Pood	Russia	36.112 pounds.
Pund (pound)	Denmark and Sweden	1.102 pounds.
Quarter	Great Britain	8.252 bushels.
Do	London (coal)	36 bushels.
Quintal	Argentine Republic	101.42 pounds.
Do	Brazil	130.06 pounds.
Do	Castile, Chile, Mexico, and Peru	101.61 pounds.
Do	Greece	123.2 pounds.
Do	Newfoundland (fish)	112 pounds.
Do	Paraguay	100 pounds.
Do	Syria	125 pounds.
Do	Metric	220.46 pounds.
Rottle	Palestine	6 pounds.
Do	Syria	5¾ pounds.
Sagen	Russia	7 feet.
Salm	Malta	490 pounds.
Se	Japan	3.6 feet.
Seer	India	1 pound 13 ounces.
Shaku	Japan	10 inches.
Sho	do	1.6 quarts.
Standard (St. Petersburg)	Lumber measure	165 cubic feet.
Stone	British	14 pounds.
Suerte	Uruguay	2,700 cuadras (*see* cuadra).
Tael	Cochin China	590.75 grains (troy).
Tan	Japan	0.25 acre.
To	do	2 pecks.
Ton	Space measure	40 cubic feet.
Tonde (cereals)	Denmark	3.94783 bushels.
Tondeland	do	1.36 acres.
Tsubo	Japan	6 feet square.
Tsun	China	1.41 inches.
Tunna	Sweden	4.5 bushels.
Tunnland	do	1.22 acres.
Vara	Argentine Republic	34.1208 inches.
Do	Castile	0.914217 yard.
Do	Central America	38.874 inches.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalent.
Vara	Chile and Peru	33.367 inches.
Do	Cuba	33.384 inches.
Do	Curaçao	33.375 inches.
Do	Mexico	33 inches.
Do	Paraguay	34 inches.
Do	Venezuela	33.384 inches.
Vedro	Russia	2.707 gallons.
Vergees	Isle of Jersey	71.1 square rods.
Verst	Russia	0.663 mile.
Vlocka	Russian Poland	41.98 acres.

METRIC WEIGHTS AND MEASURES.

Metric weights.

Milligram ($\frac{1}{1000}$ gram) equals 0.0154 grain.
Centigram($\frac{1}{100}$ gram) equals 0.1543 grain.
Decigram ($\frac{1}{10}$ gram) equals 1.5432 grains.
Gram equals 15.432 grains.
Decagram (10 grams) equals 0.3527 ounce.
Hectogram (100 grams) equals 3.5274 ounces.
Kilogram (1,000 grams) equals 2.2046 pounds.
Myriagram (10,000 grams) equals 22.046 pounds.
Quintal (100,000 grams) equals 220.46 pounds.
Millier or tonnea—ton (1,000,000 grams) equals 2,204.6 pounds.

Metric dry measure.

Millimeter ($\frac{1}{1000}$ liter) equals 0.061 cubic inch.
Centiliter ($\frac{1}{100}$ liter) equals 0.6102 cubic inch.
Deciliter ($\frac{1}{10}$ liter) equals 6.1022 cubic inches.
Liter equals 0.908 quart.
Decaliter (10 liters) equals 9.08 quarts.
Hectoliter (100 liters) equals 2.838 bushels.
Kiloliter (1,000 liters) equals 1.308 cubic yards.

Metric liquid measure.

Millimeter ($\frac{1}{1000}$ liter) equals 0.27 fluid ounce.
Centiliter ($\frac{1}{100}$ liter) equals 0.338 fluid ounce.
Deciliter ($\frac{1}{10}$ liter) equals 0.845 gill.
Liter equals 1.0567 quarts.
Decaliter (10 liters) equals 2.6417 gallons.
Hectoliter (100 liters) equals 26.417 gallons.
Kiloliter (100 liters) equals 264.17 gallons.

Metric measures of length.

Millimeter ($\frac{1}{1000}$ meter) equals 0.0394 inch.
Centimeter ($\frac{1}{100}$ meter) equals 0.3937 inch.
Decimeter ($\frac{1}{10}$ meter) equals 3.937 inches.
Meter equals 39.37 inches.

Decameter (10 meters) equals 393.7 inches.
Hectometer (100 meters) equals 328 feet 1 inch.
Kilometer (1,000 meters) equals 0.62137 mile (3,280 feet 10 inches).
Myriameter (10,000 meters) equals 6.2137 miles.

Metric surface measures.

Centare (1 square meter) equals 1,550 square inches.
Are (100 square meters) equals 119.6 square yards.
Hectare (10,000 square meters) equals 2.471 acres.

CONSULAR REPORTS.

COMMERCE, MANUFACTURES, ETC.

VOL. XLV. AUGUST, 1894. No. 167.

LENTILS IN FOREIGN COUNTRIES.*

AUSTRIA-HUNGARY.†

The lentil is extensively cultivated in the Empire of Austria. The provinces of Moravia and Bohemia, where the larger part of the crop is raised, produce annually 209,987 bushels and 135,745 bushels, respectively. In the other provinces of the Empire, it forms a far less important part of the total crop, and, as in the official reports it is put under the same head as pease, it is impossible to get exact information on the quantity grown. As the lentil is more difficult to raise, and produces less straw than the pea, the total quantity produced is much smaller.

Several species are cultivated in this country—the black, the white, the common or yellow, and the Heller. The Heller lentil is the largest and is of superior quality for the table, but needs more care and deteriorates in poor soil.

The experience of the Austrian cultivators is that the lentil thrives best in a loose, moderately rich clay soil containing a certain quantity of lime, and that it requires a warm, dry climate. For these reasons the best region for its cultivation is warm, high land, where it can be planted very well on stony ground. The field is prepared in the same manner as for pease, and both crops will grow on the same kind of ground. If the field is prepared in the fall, the crop can be planted in the spring. Fresh manure is not used, as a rank growth produces fewer pods, and weeds are apt to be more troublesome. It is considered better to scatter the seed than to plant in rows, for the plants, when scattered, throw more shadow, and are better able to preserve the ground from being parched. Only one-third as much seed is used for planting with lentils as with pease, the reason being that the grain is

* These reports (cultivation and use of lentils in foreign countries) are in answer to a Department instruction to consuls, sent by request of the Secretary of Agriculture.

† The consul-general says that, as the last complete report from the Ministry of Agriculture is for the year 1892, it has been impossible to obtain official information for the year 1893.

finer. When scattered, 1.6 to 2.1 hectoliters (4.541 to 5.96 bushels) of grain are necessary per hectare (2.471 acres); when planted in holes, 1½ hectoliters (4.227 bushels) are sufficient.

A crop of lentils does not take so long to grow as a crop of pease. As soon as the pods commence to discolor and the lower ones are ripe they are picked; if not picked at the proper time, the overripe pods burst and their contents are wasted.

The most favorable ground produces from 13 to 24 hectoltiers (37 to 68 bushels) per hectare, and under the most favorable conditions this can be doubled. The produce in Bohemia amounts to 12.6 hectoliters (35.759 bushels) per hectare in the lowlands, and to 3 hectoliters (8.514 bushels) per hectare in the western mountain range; in Moravia it varies from 6.6 hectoliters (17.31 bushels) in the Sudetin Hochland to 12.6 hectoliters (35.759 bushels) in the southern part of the Marsgebirge. In Austria, where crops are reaped in the most saving manner possible, it is considered a serious objection to the lentil that it produces only from 3.5 to 12 metric centners (14,320 to 26,460 pounds) of straw per hectare (2.471 acres). As hay is less valuable in the United States, this would hardly be a serious objection to the American farmer.

Lentils are more nourishing than pease, and bring higher prices in this country. They were quoted at the produce exchange during the month of December at from 14 to 31 florins ($5.684 to $12.586) per 100 kilograms (220.46 pounds), while picked pease ranged from 8 to 13.50 florins ($3.248 to $5.481) per 100 kilograms.

Lentil straw is equal to a medium quality of hay.

Lentils are boiled, as a rule, in Austria, and a peculiar flour, called "Ervalenta" or "Revalenta," is made from them, which is highly prized on account of its nutritive qualities and fine flavor.

MAX JUDD,
Consul-General.

VIENNA, *February 1, 1894.*

DESCRIPTION OF THE PLANT.

The lentil plant is slender and branching, with the leaves terminated by tendrils, and grows from 12 to 18 inches high. It bears small pea-like flowers, in pairs, which are succeeded by pods containing from one to four round, flattened, doubly convex seeds, and is considered the most tender of all leguminous plants.

There are three or four varieties: (1) the Penny lentil (*Pfennig linse*), the best, and, consequently, the most expensive, distinguished by a large kernel and its productiveness, but which in poor soil soon degenerates into the common kind; (2) the common lentil; and (3) the Black lentil, which tastes the best, but is small in seed and little cultivated.

CULTIVATION.

Lentils like a warm and dry climate and light and well-manured soil, for they can not thrive in moisture, either at the root or on the leaves. A mild, substantial clay and loamy, sandy calcareous soils, are most conducive to their growth. In an argillaceous soil, they do not succeed; but they grow in light soils in which pease and vetches would be parched. In rich soil they yield more stalk than grain, produce more leaves and less blossoms, and consequently yield fewer seed. The soil intended for lentils is generally treated in the same way as that for pease. The ground should be manured and plowed late in the fall, for fresh manure is not good for the lentil. It does well in fallow soil, in soils which have been used for cereals, and especially after potatoes. Thoroughly plowing and preparing the ground for sowing in the fall and then sowing the seed in the spring and lightly harrowing is the best mode of cultivation. The seeds are only lightly covered. Experience teaches that lentils should be sown deeper in dry than in wet seasons. In selecting the seed for planting special care should be taken that it be free from foreign seeds or substances of every kind. The seeds sprout in six days, and retain their productive quality for two years. Sowing takes place as soon as the soil is dry—in March or in April. The quantity of seed generally used is 1.6 hectoliters (4.54 bushels) per hectare (2.471 acres). If, after the sprouting of the lentils, weeds appear, they must be carefully extirpated, as they choke the lentils. Weeding can be done only by hand. In Bohemia small girls are hired for such work.

As soon as the pods begin to grow yellow, harvesting begins. Lentils are commonly cut with a blunt sickle, and, in this country, thrashed with a flail. A dry harvest and dry storage (airy barn loft) are desirable. The yield of one hectare (2.471 acres) is estimated to average 10 hectoliters (28.38 bushels) of seed, and 9 metric centners (1,985 pounds) of straw. The expense of cultivation is figured per hectare at ten days' horse work and thirty-two days of manual labor.

A professor of one of the agricultural schools in Bohemia says that lentils will grow wherever corn grows.

The area for cultivating lentils in Bohemia is now very limited; in fact, the cultivation is decreasing from year to year. About seventeen years ago the counties of Leimeritz, Lobositz, Laun, Libochowic, and Raudnic—where most of the lentils are raised in this country—exported about 5,000 tons per year; but the exports at present do not amount to more than 625 tons. It seems that their cultivation has not paid in recent years.

Only two crops of lentils that could be called profitable have been raised during the last ten years. This is ascribed to the plant being easily affected by change of weather, and also to the increased culture of sugar beets.

Lentils are exported from this country to France, Germany, and the United States in four qualities, namely, unassorted (in their natural condition), No. 00, No. 0, and No. 1, assorted. The average price of these in 1893 was $9.34, $11.77, $9.74, and $7.71, respectively, per 220 pounds.

The better kind of lentils are exclusively used for cooking purposes. The inferior kind (in Germany and France) is ground into flour and placed on the market as the so-called "Kraftmehl," which is mainly used in the preparation of soups, etc.

Lentils, when green, are highly valued as fodder in Europe. The dry lentil straw is also used as food for cattle, but, being hard, must be steeped in hot water before being given to the cattle.

The following table shows the crop of lentils and the yield per hectare in Bohemia during the years 1891, 1892, and 1893:

Districts.	1891.			1892.		
	Area cultivated.	Yield.		Area cultivated.	Yield.	
		Per hectare.	Total.		Per hectare.	Total.
	Hectares.	*Hectoliters.*	*Hectoliters.*	*Hectares.*	*Hectoliters.*	*Hectoliters*
Bohemia	5,798	7.1	[a]41,358	5,189	9.2	47,910
Principal districts:						
Leimeritz and Lobosic	800	2	1,600	850	10	8,500
Laun	750	3	2,250	600	5	3,000
Libochowic and Raudnic	650	8	5,200	380	12	4,560

Districts.	1893.		
	Area cultivated.	Yield.	
		Per hectare.	Total.
	Hectares.	*Hectoliters.*	*Hectoliters.*
Bohemia	4,745	5.6	26,547
Principal districts:			
Leimeritz and Lobosic	860	5	4,300
Laun	500	2	1,000
Libochowic and Raudnic	350	8	2,800

The measures and quantities in the foregoing table, reduced to American equivalents, are: One metric centner=220.46 pounds; one hectoliter=2.838 bushels; one hectare=2.471 acres.

LENTILS AS FOOD.

The food made from lentils is wholesome and nourishing. The analysis of the lentil shows that it contains 57.78 per cent of starch and dextrin, 24.81 per cent of albumen, 12.51 per cent of water, 3.58 per cent of cellulose, 2.47 per cent of salt (especially alkali and phosphorite), and 1.85 per cent of oil.

Lentils should be deprived of their skin either before or after cooking, the skin being indigestible and really hurtful. They have been used for food from the earliest times, and may be prepared in many different ways. They require three hours of slow boiling when cooked in this way. The laboring class in this country use the common lentil, prepared in a very

simple manner. They boil it till it is soft, then pour off the water and put in finely chopped fried onions, with butter, when it is ready for eating. Again, when the lentil is boiled, they simply mix it with raw sauerkraut and eat it in that shape.

In city restaurants, it is served with Frankfort and Vienna sausages, and with boiled smoked meats. It is also prepared in the shape of a thick gravy, which is made as follows: Some flour and fine chopped onions are browned in butter, then mixed with lentils and gently cooked until boiled down to a thick gravy. This is usually served with partridge and quail. Lentil soup is a favorite dish with Germans. Lentils, when prepared in the same manner as beans, make a pottage of a chocolate color, which is considered the best food to carry upon a long journey. In fact, the use of lentil food on the continent of Europe is common, especially in Catholic countries during Lent. The French people use it as a delicacy. They also manufacture from it what is called baby's food. Lentil food, on account of its nutritious qualities, is especially recommended by physicians for sick people.

JOHN KAREL,
Consul.

PRAGUE, *March 12, 1894.*

BRITISH INDIA.

The lentil is a valuable pulse, grown as a winter crop all over India, especially in the Central Provinces and Madras. In the Punjab, it is commonly cultivated throughout the province, and is said to be grown as high as 5,500 feet on the Chenab, and in parts of Laddack as high as 11,500 feet.

In this province, the lentil is an inundation crop and is never sown on other soils. Either new alluvial soils or light lands that are not good enough for wheat are selected. It may follow "mattar" (*Lathyrus sativa*) or be the first crop on new alluvial soil. The land is plowed once or twice, and the seed is sown broadcast. One plowing takes place after the seed is sown. December and January are the months for sowing, from 30 to 45 pounds of seed per acre being the quantity used. The crop ripens toward the end of March or the beginning of April. It is reaped, not pulled. The yield is light, and the pods are liable to be attacked by caterpillars. Rain, wind, and thunder are hurtful when the plant is in flower.

In the Northwest Provinces, the lentil is grown as a winter crop, under much the same conditions as pease. It is grown on all kinds of soils, but chiefly in lowlands. It is seldom grown after an autumn fallow, but most commonly follows early rice. It is often sown while the rice stalks are standing and allowed to grow up among them. Three plowings, as a rule, are sufficient. The quantity of seed sown per acre varies with the condition of the soil, but is commonly about 80 pounds. The average product per acre on unirrigated lands is from 520 to 640 pounds of grain, but, with irrigation, from 800 to 960 pounds would not be an excessive return.

In the Central Provinces, the lentil is everywhere grown as a cold-weather crop. Its cultivation is largest in the Narbudda Valley, the Satpura district, and Chattisgarh. In the Nagpur district, it is less popular. The crop is generally grown on the best black soils. The growth of lentils on black soils may be accepted as an indication that the land is of first quality. A curious fact in connection with its cultivation in Chattisgarh is that the Santami Chamars, who form an important section of the agricultural community, decline to have anything to do with it on the ground that in its red color it resembles flesh.

In Berar, the crop is grown to a small extent.

In Bengal, there are two varieties grown—the Patna variety and a variety met with in Lower Bengal. The plants of the latter are bushy and give a better yield. It does best in clay soils, as in a very light soil the plants wither away. It comes after and is followed by rice. Three or four plowings suffice. It should be sown when the land is fairly dry, for if too much moisture be present the plants shoot up quickly, but afterward make no progress. Twenty pounds of seed are sown to the acre from the middle of October to the end of November, and barley is sometimes mixed with it. It is harvested in February and March, and yields from 480 to 640 pounds per acre. In the Baghulpore division one or two plowings and one or two harrowings are considered sufficient. The seed is sown in October and November, and the crop is reaped in March and April. Lentils are also grown to a limited extent in Chutia-Nagpur and in the Behar districts.

In Bombay, the lentil crop is an unimportant one compared with the other pulses. As in other districts, it is sown in October. It is chiefly grown in the area of Nasik. Assam and Burma also produce lentils.

A consideration of the above shows that the lentil crop is universally a cold-weather one; that it is especially suited to low-lying moist soils; that with a fair quantity of seed—say 80 pounds—it yields from 520 to 640 pounds per acre, and with irrigation up to 960 pounds; that the soil requires little preliminary working and the crop little attention; and that the yield might be increased if more pains were taken with the selection of seed for sowing, since there are some varieties of the lentil which produce seed weighing twice as much as the small common sort, and which, notwithstanding their size, do not make a proportionately increased demand on the resources of the soil.

The lentil is eaten by the natives as "dal," flavored with various aromatics and carminatives, and as a component part of the dish called "Kichri." It is considered the most nutritious of the pulses. It is thought to be heating when too freely indulged in and to give rise to eruptions. The young pod is occasionally eaten as a vegetable, and the dry leaves and stalks are used as fodder for cattle.

The official returns do not specify the different pulses separately, so that it is not possible to give the acreage sown in lentils, though it is undoubt-

edly very large. For the same reason it is not possible to give the figures of the trade in lentils, which is considerable.

Lentils at present sell in Calcutta for about $1 to $1.60 per 100 pounds, and for somewhat less at interior points.

VAN LEER POLK,
Consul-General.

CALCUTTA, *February 27, 1894.*

CHILE.

Lentils are grown in southern Chile, in the provinces of Ñuble and Aconcagua, between the latitudes 32° and 37° S. They require a light and somewhat sandy soil. They are sown in August and harvested in December and January following, the seasons here being the reverse of the seasons in the United States.

The cultivation is about the same as that of pease. The plants grow from 1 to 2 feet in height, and, when matured, are pulled up by the roots and heaped up. When perfectly dry—which requires only a few days—they are thrashed by machinery, or, as is generally done here, tramped out by horses.

As food, they are very nutritious, being prepared in the same manner as pease or beans. The straw of the lentils, when properly cured, is considered excellent food for animals.

The estimated cost of production per 200 pounds is $10 in Chilean paper currency.

The exportations of lentils from Chile to other South American states and to Europe were 1,534,907 pounds, 2,456,000 pounds, and 2,618,200 pounds, respectively, during the years 1891, 1892, and 1893.

The wholesale price of lentils at present is $18 in Chilean paper currency ($4.50 in United States gold at present rate of exchange) per 2.575 bushels.

JAMES M. DOBBS,
Consul.

VALPARAISO, *May 17, 1894.*

EGYPT.

The lentil crop of Egypt is one of considerable value; it is estimated to furnish one-sixth of the food of the people of the country, as well as being of some importance as an export to other countries. The climate and soil combine to make it a crop easily cultivated and one requiring comparatively little irrigation, save that which comes, without labor, when the Nile is in flood. Lentils grown in Egypt are said to be the most nourishing, and, consequently, enjoy a widespread reputation for excellence.

Farmers of the Nile Valley, from Cairo southward to Assouan, rotate lentils with other crops, such as wheat, barley, and maize. The crop is

gathered in April and May, or about four months from the time of sowing. It is next to impossible to obtain even approximate statistics of the acreage sown, or of the product, or the value per acre. Every farmer, however small, raises enough lentils for his own consumption; but, as it is not considered a very profitable crop, cultivators on a large scale devote their lands to it only in rotation with other crops with a view to "resting" the soil. During the period of growing very little attention is devoted to the fields given up to lentils.

The natives have a simple process for making lentil porridge, which is at once wholesome and sustaining and their cheapest available article of food. In Cairo, Alexandria, and other towns having European residents, lentils are largely used for soup.

During the year 1893, the receipts of lentils at Alexandria were 8,650 tons, of which 533 tons were sold for local consumption and the remaining 8,117 tons were shipped to other countries. The customs returns show that the greater portion went to England, there being many shipments to London, where lentils form a basis in the manufacture of several food preparations of the "Revelenta" order. The current price at Alexandria for lentils is about $2.75 per ardeb (330 pounds).

FREDERIC C. PENFIELD,
Agent and Consul-General.

CAIRO, *April 13, 1894.*

FRANCE.

Lentils are leguminous plants, characterized by an ovary reduced to two ovals; therefore, at maturity every husk gives only a maximum of two seeds. They are herbs with angular and branchy stalks from 8 to 16 inches in height, bearing two or three flowers, small, white and streaked with blue, violet, or green. The vegetable which succeeds to these flowers is smooth, flat, and contains two seeds, the convexity of which is more or less prominently shown according to the species. The lentil has been cultivated since prehistoric times in temperate oriental countries, in the Mediterranean regions, and even in Switzerland. It is believed that it existed in a spontaneous state in western Asia, in Greece, and in Italy, and its geographical area now includes all Europe and all temperate Asia.

There are several species, viz, the common lentils (large, white or rather pale-green lentils with very flat seeds of a pale blonde color about one-fourth of an inch in diameter); the small lentil, of the same color; and the small red lentil, the seeds of which are of a reddish color and do not reach a larger size than about one-sixth of an inch in diameter. They have all the same shape—round, flat, and a little convex in the middle.

There is, of the species last named, a spring lentil, called more especially "Lentil à la Reine," and a species of small winter lentil. The Puy lentil, of a green color, especially cultivated in the neighborhood of the town called

Puy-en-Velay, is plainly characterized by its small seeds, being more convex than those of the "Lentil à la Reine," and showing a green color dotted with black.

The lentils have a marked preference for light soils in which calcareous elements enter in a large proportion. In compact and clayey soils, the herbaceous development of the plant is often considerable, but the produce in seeds is always poor. The soil best adapted for their production is a mixture of clay and sand, the latter predominating.

In the north of France, the winter species are frequently destroyed by the inclemency of the weather when they are sown in a soil which does not dry very well in the cold season. Lentils are not very exacting as to the richness of the soil, and, very often, the less fertile soils are reserved for their culture. Generally they are intercalated between two cereals, as they do not want separate fertilizing.

There are many differences in the culture of lentils, according to the species. The common lentil is the kind more generally met with in commerce. It is especially consumed in the north, being a spring lentil which (in the central part of France) is sown as soon as the cold and frost are over. As it requires a light soil, two plowings, alternating with harrowing, are sufficient to bring the earth to the required state. They are sown sometimes in "pockets," sometimes in rows. The sowing in "pockets," performed with a hoe, produces a tuft of lentils about every 12 inches. For this purpose five or six seeds are placed in holes, rather large, but not deep, and are covered with earth to a depth of probably 2 inches. This way of sowing requires a great deal of time and is very inconvenient, rendering the digging difficult, and yields only a small production. The preference must be given to the sowing in rows, which may be done at the same time as the last plowing, or even after harrowing. In the first place a woman follows the plow and drops the lentil seeds as regularly as possible in the rows; they sow only every other line, so as to obtain sufficient space between the rows of plants. This method requires well-prepared ground and very light plowing. The sowing in equidistant furrows is often substituted for the former method. The furrows are opened by a man, who uses a special hoe. The seeds are covered by a rake, leaving between the lines a space of an inch or an inch and a half. To have a first harvest it is indispensable to keep the ground clean and light. To obtain this result frequent digging over is required. The cultivators in many cases turn over the ground only twice—once when the earth around the lentils is not clean or too firmly packed and again at the time of blossoming. The lentils mature about the end of July. The returns are from 10 to 15 hectoliters (28.38 to 42.57 bushels) per hectare (2.471 acres). The weight of one hectoliter is from 78 to 80 kilograms (172 to 176.4 pounds). The returns of straw are from 1,800 to 2,500 kilograms (3,969 to 5,125 pounds).

The small red lentil is generally used as fodder for animals, and is therefore sown broadcast. The green, or Puy, lentil is highly thought of in the

south of France; it is an important culture all over the Auvergne province. It grows at a considerable altitude. The ground is generally prepared in the autumn or during the winter, even when a little snow is on the ground. In March they open the ground with a hoe, making furrows about 2 inches apart, into which the seeds are dropped by hand, as in the case of the common lentil. About 150 liters are used per hectare. The seeds are covered by rake or harrow. The returns are from 12 to 15 hectoliters (34 to 42½ bushels), with 2,500 kilograms (5,125 pounds) of straw per hectare (2.471 acres).

Lentils, though growing readily on a chalky soil, are by no means hardy, and require to be sheltered from the wind as much as possible. It is also important that they be gathered or harvested at precisely the right moment, for, if they are havested too green or too ripe, they will not dry properly.

The several varieties of lentils are known to commerce as "fine," or "Lorraine," "Auvergne," and "wild," or "bastard," lentils. Some varieties are sown in the fall. These require about 1¼ bushels of seed to the acre, as against 1 bushel for the spring variety. This fall sowing yields from 16 to 20 bushels per acre, together with three-fourths of one ton to one ton of hay, which resembles alfalfa and makes an excellent fodder for domestic animals.

The production of lentils in France is confined chiefly to the eastern and southeastern departments. In the western part they are little cultivated, and are almost unknown to commerce. In a few western provinces they are raised to a limited extent by farmers and fed to their stock.

There seems to be a great diversity in the habits and tastes of the people of the different sections of France as regards this vegetable. In some provinces they are almost universally used by the peasantry and the laboring people of the cities in the making of soup and porridge and for other purposes, and are regarded as a nutritious and economical food stuff.

The little, dry, greenish-yellow discs swell and expand in the process of cooking until the few ounces purchased at the grocer's will fill a large platter. Lentils are boiled into soup, or stewed, with water and grease, into a species of porridge of much the same consistency as green pea, rice, or haricot-bean porridge. The addition of salt and pepper is then all that is required to make them palatable. Lentils are also much used in the same manner as beans, cabbage, carrots, onions, and turnips in the composition of the "pot-au-feu," which is a standard dish in every French household, high and low.

The lentil is, like all farinaceous vegetables, very nourishing, and among the peasantry in some sections belief exists that it induces the hypersecretion of milk after parturition. Sometimes lentils are ground into flour, from which bread of an inferior quality is made. In the north lentils are said to be used to some extent in the manufacture of chocolate, cocoa, and infants' food.

The following information as to the use of lentils in feeding live stock is furnished by Mr. J. Vendroux, United States consular agent at Calais:

The north of France cultivates a rather large quantity of lentils for animal food, especially for horses. On almost every farm people sow, in September, a mixture called "hivernache," composed of one-half of rye, one-fourth of vetch, and one-fourth of lentils. The crop is ripe in July, and in the autumn is reported to be one of the best stimulants for horses when they have the heaviest work to do. It spares the oats at the moment when oats are scarce, the old stock being exhausted and the new crop not fit for feed. This mixture offers great advantages because the rye has grain at the top of the bunch, vetch in the middle, and the lentils about one foot high give rich food at the bottom of the bunch, where the straw has rarely any nutritive qualities. If it is given whole, the animals find everywhere good food, and if it is chopped, the mixture is more regular. Sometimes cows are fed with this "hivernache" when the meadow grasses are scarce and poor, and the milk is at once more plentiful and richer in butter.

Lentils form a very rich food for men and animals, the chemical composition being generally: Water, 134; azote, 38; phosphoric acid, 5½; potash, 7½; lime, 1. Vetches, beans, and lupine alone are richer food than lentils.

Great precaution must be taken when lentils are given to animals. If the quantity is too liberal, it may lead to serious results. This, it is explained, is because the highly nitrogenous qualities of the lentils render them very heating.

Mr. A. Pitel, United States consular agent at Brest, is authority for the statement that, when lentils were introduced into the rations in the French navy, the seamen remonstrated so strongly that the administration was obliged to substitute beans.

Lentils are found for sale in the grocery and other food-supply and provision stores of most of the cities and large towns. The prices seem to vary considerably in different cities. At Lyons they range from 9 to 13 cents per kilogram (2⅛ pounds); at Rouen, 12 to 18 cents; and at Cognac 19.3 cents per 2⅛ pounds; at Rheims, 6 cents per liter (nine-tenths of a quart) for the red lentils, 14 cents for the small white lentils, and 16 cents for the large white lentils; at Bordeaux, from 16 to 19.3 cents per 2⅛ pounds; at Roubaix, from 13 to 18 cents per quart, while dried pease and beans sell for 7 to 13 cents.

The average consumption of lentils throughout France is estimated at a little more than 2,000 kilograms (4,409 pounds) per 100,000 inhabitants. In the department of Haute-Loire, which is the chief seat of this production, 1,994 hectares (4,927 acres) are devoted to the cultivation of this crop, the usual yield per hectare being 1,260 liters (36 bushels), or from fifteen to twenty fold.

I am indebted to M. Levegues, chief of the division of dry vegetables of the "Halles Centrales" (central markets) of Paris, for the following statement regarding the consumption of lentils in Paris, which differs in some particulars from the information obtained from United States consular officers in the provinces and embodied in the foregoing:

Lentils are drawn principally from Moravia, secondly from Spain, thirdly from Bohemia, and fourthly from Chile. A few small ones come from Lorraine. A few are also raised in Auvergne, but are consumed in that province.

Lentils are classed in the following order:

(1) Moravian lentils, which are the most esteemed and which are of blonde color.

(2) Spanish lentils rank second, but are not sold in such important quantities as the Moravian, and when cooked are inferior to the Moravian lentil.

(3) Bohemian lentils. These are not very much esteemed, as they contain a large number of flies (insects).

(4) Chilean lentils. These rank in quality directly after the Moravian. They are very fine, and arrive in France in the months of May and June. They cook well, but the quantity imported into France is small (about three ships per season).

The prices of lentils per 100 kilograms (220.46 pounds), actual commercial quotations, are as follows: Moravian, according to the size, from 38 to 62 francs ($6.33 to $11.97); Spanish, 30 to 45 francs ($5.79 to $8.68); Bohemian, 28 to 40 francs ($5.40 to $7.72); Chilean, not yet arrived, consequently no quotations.

The most esteemed color is blonde (Moravian and Bohemian lentils).

All of the lentils consumed in France, with the exception of a very few that are grown and consumed at Auvergne, come from foreign countries, as in France, owing to the disease known as "la mouche" (flies that penetrate into lentils), the culture has been abandoned, there being no other lentils than these actually in France.

I send herewith samples of lentils grown in the Haute-Loire, and also of those imported from Spain. These samples are furnished by Mr. Charles W. Whiley, jr., United States consul at St. Etienne.*

Information for use in this report has been furnished by Consul Hall, Nice; Consul du Bellet, Rheims; Commercial Agent Angell, Roubaix; Consul Beecher, Cognac; Consul Chancellor, Havre; Commercial Agent Griffin, Limoges; Consul Hyde, Lyons; Consul Savage, Nantes; Consul Wiley, Bordeaux; and Consul Williams, Rouen.

SAMUEL E. MORSS,
Consul-General.

PARIS, *March 30, 1894.*

GERMANY.

The cultivation of lentils is limited to certain localities in all parts of the world, and does not assume such large proportions as the cultivation of pease. In ancient times, the cultivation of lentils received most attention in the Orient (Egypt and India). In Europe, lentils may be grown up to 60° north latitude, but the production of seeds and straw is below standard. This may be considered the chief reason why their cultivation is confined principally to the small farmers in Germany, and why, in many parts, they are not planted at all. The production of lentils in Alsace-Lorraine, Thuringia, and Saxony is not sufficient to supply the limited demand of Germany, the shortage being covered by importations from Moravia, Bohemia, Russia, and, lately, from Chile. Among European countries producing lentils, may be counted Austria-Hungary, Russia, and Spain, but the last-named country in favorable seasons only.

*Samples transmitted to the Department of Agriculture.

Lentils are harvested about the same time as pease. The English market is supplied by Egypt and India.

Commerce classifies lentils according to size, and they are generally known as small, or common, and large, or Heller, lentils. The hulls are of a whitish or yellowish green color. Asia and Africa produce small lentils with reddish hulls, the pulse being also of bright-red color; France produces a similar kind (reddish color), cultivated principally in Champagne and exported to England; they are also found to a small extent mixed with lentils imported from Russia and Chile. The small black-hulled lentil is not cultivated in Europe, but is grown to a small extent in America.

As previously stated, lentils are known in commerce and are classified according to size and weight. The "measurement across" of the different qualities is given as follows: First quality, 6 to 8 millimeters; second quality, 4 to 5 millimeters; third quality, all less than second quality. The German market is principally supplied with "sugar lentils" measuring 3 to 4 millimeters.

Russia and Chile grow the small lentils; Bohemia and Moravia the large ones. The small seeds are round, and the large ones are more nearly flat. The seed cases of lentils grown in dry seasons have a wrinkled appearance, due to lack of moisture and ripeness. At the edge of the seed the hilum is visible, being of a brighter color than the seed coat, and is 1.5 to 2 millimeters long. The seed case is finer than the seed case of pease, and the tissue of seed lobes about the same as those of pease. The albumen stratum is but feebly developed. The starch kernels are smaller than those of pease, are egg or kidney shaped, and the cavities are full of fissures, which appear quite plainly. The commercial value is based upon the average size and weight.

Test qualities of lentils.

Description.	Measurement across.	Thickness.	Weight per 100 seeds.
Large size.	*Millimeters.*	*Millimeters.*	*Grams.*
Moravia	7 to 8	2 to 3.5	8.58
	6.5 to 7	2	6.55
Native (Dantzic)	6.5 to 7	2 to 3	6.4
	6 to 7	2 to 3	7.05
Thuringia	6.5 to 7	2.5	7.44
	6.5 to 7	2.5	6.82
	6 to 6.5	2 to 2.5	6.7
	6 to 7	2 to 2.5	6.32
Chile*	6.5 to 7	2.5 to 3	6.5
Hamburg*	6 to 7	2 to 3	6 24
Bohemia	6 to 7	2.5	6.17
Berlin*	6 to 7	2 to 3	5.61
Spain (London)	6 to 7	2.5 to 3	6.93
Lorraine	6 to 7	2 to 2.5	5.91
Russia*	6 to 7	2	5.3

*Mixed—Chilean 10 per cent small; Chilean (Hamburg) 15 per cent medium; Bohemian (Berlin) 20 per cent medium; Russian, 10 per cent small.

Test qualities of lentils—Continued.

Description.	Measurement across.	Thickness.	Weight per 100 seeds.
Medium size.	*Millimeters.*	*Millimeters.*	*Grams.*
Thuringia	5 to 6	2 to 3	5.54
	5.5 to 6	2.5	5.5
	5 to 5.5	2 to 2.5	4.69
	5 to 5.5	2.5	4.54
Moravia (Erfurt)	5 to 6	2 to 3	5.45
Austria (Silesia)	5 to 6	2 to 2.5	5.08
Lorraine	5 to 5.5	2.5 to 2.8	4.31
Berlin	4.5 to 5.5	2.5	3.67
Russia	4.5 to 5.5	2 to 3	3.54
	4 to 6	2.15	3.5
Hungary	4.5 to 5.5	2 to 3	3.52
India (London)	5	2.5 to 2.8	4.27
Small size.			
Russia:			
Hamburg	4.5 to 5	2 to 3	3.61
	3 to 4.5	2 to 3	2.65
Erfurt	4 to 5	2 to 2.5	3.45
Berlin	3.5 to 4.5	2 to 3	2.71
	3.5 to 4	2 to 3	2.43
Dantzic	3.5 to 4	2 to 2.5	2.26
Thuringia	3.5 to 5	2 to 2.5	3.37
	3.5 to 5	2 to 2.5	3.23
Chile (Hamburg)	4 to 5	2 to 3	3.23
Native (Dantzic)	3.5 to 4.5	2.5	2.83
Silesia (Breslau)	3 to 4.5	2 to 3	2.66
Sugar lentils	3 to 4	2 to 2.5	2.08
Egypt (London)	4 to 4.5	2 to 2.5	2.43
India (London)	3 to 3.5	1.5 to 2.5	1.65
Bombay and Calcutta	3 to 3.5	2 to 2.5	1.89
France (Champagne)	4 to 5	2 to 2.5	2.86
Africa (Hamburg)	4 to 5	2 to 2.5	2.65

It takes ten to twenty large ones, twenty to thirty medium, and thirty to forty-five small lentils to weigh one gram. Egyptian and Indian lentils can not be included in this estimate. Those of a bright-whitish, bright-yellowish, or yellowish-green color have the preference in the market over lentils of a reddish or brownish color; but those of a bright-green color are preferred over all others.

It is of importance that the color be as uniform as possible, as mixed colors are not desirable in the market. Red lentils, with pulse of same color, are seldom found in the European product, those grown in France being of a bright reddish gray. The lentils produced in Egypt and the Orient are of a dark reddish-brown color. The small black lentils are not found in the German market, not having the aromatic flavor required or the sweet taste of the other species.

The length of time elapsed since the harvesting of lentils is ascertained by their color. Lentils well ripened have a bright-whitish or yellowish-green color during the first year, a bright brownish or reddish-brown color in the second year, and a dark reddish-brown color in the third year. The

change of color takes place much sooner in lentils not well matured before being gathered. Crops of different seasons should not be mixed.

The most effective method known of cleaning lentils is to pick and separate them by hand, although there are machines to do the work (*Linsen-Trieurs*).

Many varieties of wild lentils are known, chief among which is the vetch, cultivated to a large extent in Germany.

Lentils imported from Egypt and East India are not well cleaned as a rule, it being impossible to remove the wild seeds by machinery.

During growth, the straw is very often injured by parasitical plants, by reason of which the seeds become stunted; mildew and rust damage the crop also. Caterpillars and the lentil bug destroy the seeds, the caterpillars in the unripe stage only. Lentils kept in storage are frequently damaged by darklings (*Trubiomolitor L.*), and those which were damaged in their green stage are found moth-eaten (*Endrosis lacteella*).

During the process of thrashing, lentils are also frequently damaged, and as high as 6 per cent has been found where little pieces are knocked off the edge of the seed, thereby destroying the germ. Lentils which do not yield to the influence of water or become soft by steeping are seldom found. Peeled lentils are not found in the German market; it is claimed that by removal of the seed case they lose their sweet flavor and, consequently, a part of their agreeable taste. In the English market, peeled lentils are more in demand.

Lentils are used as a vegetable or for soup and lentil porridge. They are also used in some localities for fattening hogs, but the yield is not large enough to encourage farmers to more extensive cultivation for this purpose. The small lentils imported from Africa are used for feeding poultry.

The straw is cut in chaff-cutting machines and is considered valuable feed for horses. The hulls are worthless as feed for cattle or horses, the ligneous fiber being indigestible.

As to the nourishing qualities of lentils for human food, little is known. I find, however, in a report of the imperial health department that one Strümpel had made a test with lentils steeped in water, and then cooked. The result was that only 59 per cent of the nitrogenous matter was digestible, conclusively showing that it is not an article of food for weak stomachs.

As to the kind of soil best adapted and the method of cultivation, little is known, at least nothing official. I understand, however, that the manner of cultivation is about the same as for other podded grains.

The table following shows the production of legumes in Germany in 1892—lentils not included, as no statistics are available.

Cultivation of legumes in Germany in 1892.

Where produced.	Area planted.	Seed product.	Straw product.
Pease.	*Hectares.*	*Tons.*	*Tons.*
Prussia	313,909	247,059	363,777
Bavaria	8,977	10,361	12,678
Saxony	2,245	2,390	3,247
Würtemberg	2,135	2,614	3,645
Baden	680	648	427
Hesse	3,177	3,152	4,735
Oldenburg	1,080	1,158	1,754
Alsace-Lorraine	3,072	2,337	2,568
Balance of territory	12,285	14,008	17,954
Total*	364,818	304,724	461,762
Broad beans.			
Prussia	117,652	155,060	196,124
Bavaria	2,593	4,017	4,740
Saxony	115	166	236
Würtemberg	3,396	5,912	7,112
Baden	339	443	275
Hesse	255	237	225
Oldenburg	4,149	7,699	13,277
Alsace-Lorraine	8,635	11,628	10,980
Balance of territory	18,359	25,527	41,707
Vetches.			
Prussia	145,264	115,941	239,425
Bavaria	11,955	14,241	26,126
Saxony	3,464	3,850	5,157
Würtemberg	5,358	6,906	16,012
Baden	824	702	8,593
Hesse	1,201	1,139	2,663
Oldenburg	121	35	78
Alsace-Lorraine	1,607	1,374	2,928
Balance of territory	6,397	5,706	9,953
Total*	180,124	154,342	318,094
Lupins.			
Prussia	146,842	80,967	133,452
Bavaria	462	532	782
Saxony	326	175	922
Würtemberg	7	4	12
Hesse	149	120	127
Oldenburg	390	399	2,425
Alsace-Lorraine	83	47	162
Balance of territory	1,872	1,723	2,967
Total*	154,001	87,129	153,631

* In this statement all the details are not given; the totals, however, are correct.

JOHN MATTES, JR.,
Deputy Consul-General.

BERLIN, *February 21, 1894.*

The common lentil (*Ervum lens*) has long been used as food in Europe, particularly by the peasant and industrial classes. It is eaten mainly in the form of a thick soup, or boiled and served as a vegetable, like beans or pease. It was formerly grown more or less generally throughout most European

countries; but, as it requires for its profitable cultivation not only cheap land and cheap labor, but certain special conditions of soil and climate, the tendency has been, since the introduction of railways and cheap water freights, to concentrate its culture in the countries and districts where the requisite conditions are most readily available.

No lentils of any consequence are grown in the region of Frankfort, and their culture in Germany is practically confined to two districts—Unter Franken, in Bavaria, and the province of Thuringia, the central market of which is the city of Erfurt, famed also for its commerce in garden and flower seeds. The great bulk of the lentils consumed in France and Germany is imported from Austria-Hungary and Russia, the principal area of culture in Austria being the province of Mähren and Bohemia, both of which produce the finest grades of lentils known in the European market. Germany imported 17,123,700 pounds of dried lentils in 1891 and 18,905,260 pounds in 1892, which came almost exclusively from Austria-Hungary.

The severe and prolonged drought of the past year greatly injured and reduced the crop in Thuringia, Bavaria, and in the drier districts of Austria, for the lentil is a plant which requires a cool, moist climate and suffers severely from excessive heat and drought. Accordingly, we find in the import statistics of the first eleven months of 1893 a heavy decline in the receipts of Austrian lentils and an unprecedented import, through the Baltic port of Königsberg, from Russia, where, by reason of more abundant rains and a generally favorable season, an excellent crop was grown. To this was added what was still more remarkable—a new and considerable import of lentils from Chile. The imports of lentils into Germany during the first eleven months of 1893, as shown by the custom-house returns, were:

	Pounds.
From Austria-Hungary	5,902,606
From Russia	5,574,580
From Chile	749,854
Total	12,227,040

The duty on dried lentils imported into Germany is under three schedules, depending upon the commercial relations which exist between the German Empire and the country of origin. Those from Austria-Hungary are subject to the minimum rate of duty accorded to the most-favored nations, and pay 35.7 cents per 100 kilograms (220.46 pounds); those from Chile pay the standard rate of 47 cents per 100 kilograms; while those from Russia have been subject during the tariff war* to 50 per cent in excess of the standard rate, or 71 cents per 100 kilograms. Railway freights to Frankfort from central and northern Austria vary from $1 to $1.25 per 100 kilograms, so that freight and duty on lentils imported from that country make up about 20 per cent of the value of the product in this market.

As merchandise, lentils vary greatly in value, according to size and evenness of the grains, cleanliness, color, freshness, and freedom from dark-

*The "tariff war" referred to has ceased, a Russo-Germanic commercial tariff having been proclaimed.

colored grains and insects. A light olive green, verging toward yellow, is the color preferred. The principal defect found in the lentils from Chile is that they are too white in color. The smallest and most inferior grades of European origin now sell in Frankfort for from $3.80 to $4 per 100 kilograms, while the better qualities range in wholesale market value from $5 up to $12, and even $12.50, per 100 kilograms. The crop now in market is fairly represented by the seven samples which are transmitted with this report, marked with their origin and market values as follows:

Description.	Retail price.*	Wholesale price.†
Native.		
Thuringian:		
No. 1	$0.08½	.....
No. 2	.07	.....
Imported.		
Austrian:		
No. 1	.....	$11.90
No. 2	.....	11.40
Russian:		
No. 1	.....	10.47
No. 2	.....	7.14
No. 3	.....	4.76

* Per pound. † Per 220.5 pounds.

The lentil is a spring plant, and is generally sown broadcast on land that has been carefully prepared, as for beans or pease, and harrowed in like wheat or rye. In some districts it is also drilled in rows, and may then be cultivated and kept free from weeds by hoeing. The plant is sensitive to frost, but, like the white bean, does not require rich soil, and can, therefore, be successfully grown on land which will not produce good crops of sugar beets, wheat, or tobacco. In the rotation of crops, which is so carefully practiced in Germany, lentils are found to follow best after potatoes.

There are two varieties—the large and the small—which are quite distinct in respect to the size of the plant and its seeds. When sown broadcast about 90 pounds per acre of the small variety are used as seed, and for the large kind from 70 to 72 pounds per acre. The crop grows quite like field pease, and, in ordinary seasons, is ripe about the end of July. Harvest follows during the first fortnight of August, and the new lentils appear promptly in the market, for they are always preferred when fresh to those which have remained over from the preceding year.

In low situations, or in valleys where excessive summer heats prevail, a moth is often developed, which lays its egg in the growing seed. After harvest, this egg is hatched and produces a worm, which eats out the interior substance, and, when in any great number, ruins the market value of the product, as it is impossible to eliminate the affected seeds by screening. Lentils which have been thus injured, or which have, by reason of age, turned reddish gray in color, are no longer salable as human food, and are used as feed for pigeons and fowls, and especially for milch cows, the high percent-

age of albumen which they contain being of great advantage to both the quality and quantity of milk produced. For the same reason lentil soup has long been considered the best possible food for nursing women. It is, moreover, wholesome and highly nutritious, and "Linsensuppe," with boiled sausage, is a standard dish among the peasantry of most European countries.

So far as can be ascertained, the 374 tons of lentils which were received from Chile during the past year form the first considerable import of its kind that has been brought to Germany from the western continent, and it is deserving of notice, not only as a commercial indication, but as one of the anomalies of international exchange. Why such a product should come from Chile alone of all the South American states no one here can explain beyond the apparent fact that the requisite conditions of soil and climate have been found there, and the serious curtailment of the German and Austrian crops by drought created an opportunity which the German exporters in Chile were prompt to utilize. Whether any considerable import from there can be maintained in the face of normal crops in Europe, is thought to be doubtful for two reasons—first, the fact that the new Chilean crop arrives here in the spring and comes into the German market at a time when lentils are much less generally eaten than in autumn and winter, and, secondly, the fact, already noted, that the Chilean lentil, although of good size and flavor, is too light in color to suit the notions of consumers in a country where the highest merit required in any imported article is that it shall resemble as closely as possible the domestic product which it seeks to replace.

FRANK H. MASON,
Consul-General.

FRANKFORT, *January 29, 1894.*

ITALY

Lentils are very generally cultivated throughout Italy, without, however, occupying a very large acreage. They are grown on the thin soil of the hillsides, and are given 2 tons of stable manure to the acre. They follow grain, vetches, or other leguminous crops. The land should be well pulverized and loosened to a depth of from 6 to 8 inches. In northern Italy lentils are sown in the spring; in southern Italy, in the autumn or winter. The quantity of seed per acre is one bushel sown broadcast or planted in hills or rows 12 to 16 inches apart. The crop requires two hoeings.

Lentils are harvested when the plant begins to turn yellow and the seeds have become hard. They are harvested by pulling up the vines or cutting them off even with the ground and piling them in heaps exposed to the sun for two or three days. They are then carried to the thrashing floor and whipped off by flail.

Cultivation has produced several varieties of lentils. Some are relatively large and flat, of a greenish or yellowish color; others, while having the same form, are much smaller and are dark, either uniformly or speckled;

and others are round, which, at first view, makes them resemble the vetch. The small lentils are the most esteemed. They are grown principally in Sicily and other islands and weigh 52 pounds to the bushel.

The *Bruchus* is the lentil's greatest enemy. To prevent the development of the eggs of this insect which have been deposited in the lentils reserved for planting, the seed is placed in glass jars, hermetically sealed, or else it receives a very slight coating of olive oil.

Lentils are used in soup or cooked with meat. They are also pounded into flour and made into bread.

No separate statistics of the production of lentils are kept by the Italian Ministry of Agriculture.

WALLACE S. JONES,
Consul-General.

ROME, *February 27, 1894.*

RUSSIA.

Small-grained lentils are cultivated in Russia in many of the Chernoziom governments, principally by peasants who use them as food, making a sort of jelly thereof. In the government of Tula, their cultivation has in late years greatly replaced that of pease, and for the following reasons: Pease do not always thrive well in Russia, and they require earth of very good quality; they must be poled, a very inconvenient process for the peasants; pea straw forms a very poor fodder, while the straw of lentils is as good as hay for the cattle, thus proving of great value to the peasants, owing to the scarcity and, sometimes, total absence of meadow lands on peasant farms.

Lentils are sown on poor soil, but, nevertheless, yield a crop of 80 to 100 poods* per dessiatine.† After lentils the earth remains in very good condition, and cereals may follow, as after buckwheat.

If large-grained lentils possessed the same qualities as the small grained, their cultivation would be advantageous, and, at the same time, useful as a means of enriching the soil with azotic substances.

As to export, large-grained lentils are greatly in demand, not only in western Europe, but also in America. In Libau there existed during the two years 1889 and 1890 a Hamburg firm which exported from Russia the so-called large-grained lentils, known among the Germans under the name of "Kochlinsen." This house was founded at Libau in consequence of great demands abroad for this product and in the hope of finding it in abundance in Russia. A special factory had been organized for the sorting of lentils, as abroad, where only carefully sorted and large-grained lentils are in demand. In central Russia, however, the farmers knew nothing either about the above-named firm or the great demands for large-grained lentils, of which 500 cars could be yearly exported from Libau at the price of 1.20 to 1.40 rubles per pood. The firm was obliged to buy the small-grained

*1 pood=36 pounds. †1 dessiatine=2.6997 acres.

product, and of that it could get no more than 70 cars per year, and, finally, the house had to close its doors.

The cultivation of large-grained lentils in the government of Kiev began only in 1891, and develops very slowly. An estate-owner in this government reports that he sowed at the same time two sorts of large-grained lentils—one from grain received from Vienna and the other from the local grain exhibited at the agricultural exposition at Kiev. Both of these sorts of grain were sown in rows on soil which had been well cultivated but not manured. The crop was only eightfold, and, therefore, not very satisfactory. The grain of the lentil was, owing to a bad summer, much worse than that sown; it was small, shriveled, and unsightly. This circumstance was, however, accidental, owing to the bad meteorological conditions of the year. All the stems of the lentil did not flower uniformly. The greater portion of them were covered with small flowers, with here and there very large flowers. Thinking that the large flowers would produce grain of especially large size, the landowner paid special attention to them; but the large-flowered stems and the small-flowered ones produced grain of an equal grade. This lentil suffered a great deal from plant lice, which destroyed one-tenth of the crop. This louse spread rapidly, and it was impossible to exterminate it.

The large-grained lentil, though a novelty for western Russia, has been long cultivated in eastern Russia. In the government of Penza, it is grown in great quantities, and serves as fodder for horses. One of the reasons why it is cultivated so generally is that after the crop is harvested the field remains in excellent condition for winter wheat.

In the government of Kazan, lentils are cultivated by different tribes, especially by Tartars, who use them as food instead of pease. The sort cultivated there belongs to the *Ervum ervilla*, which has small grains of a gray color, grows very low, and has white, pinkish flowers. It is sown later than pease—generally after the sowing of spring cereals (oats, wheat, and barley). This sort of lentil does not give abundant crops—30 to 40 poods of grain per dessiatine. Perhaps this is due to the unfruitfulness of the soil on which it is grown, to the bad grain (which is never sorted), or to the bad cultivation of the ground at sowing time, or to all three combined. About 7 poods of grain are sown per dessiatine, with the aid of a harrow or plow. After it is sown no care is taken of the crop; sometimes, however, the larger weeds are pulled.

In the government of Kharkow, three sorts of lentils were sown at one time by the agricultural school as an experiment. These sorts were the Erfurt large grained, large light grained, and the French lentil. They were sown in rows, 4 poods of grain per dessiatine, on clayey black-earth soil which had been plowed in autumn to the depth of 14 inches and superficially harrowed in spring. The sowing took place on March 28. The first sprouts appeared on April 16, and by July 14 the lentils were ready for the harvest. Therefore, the period of vegetation was only three months. This was due, however, to the dry, hot weather; otherwise, the vegetative

period would have been longer. Notwithstanding the unfavorable season, the lentil developed very satisfactorily and gave the following crops: Large light-grained lentil, nineteenfold; large-grained Erfurt, twenty-onefold; French large grained, fifteenfold.

It should be added that a frost of 38.5° F., which took place on May 1, did not affect the crop in the least.

An estate owner in the government of Tula relates that, having received from Hamburg 12 poods of large-grained lentil seed, he sowed the whole quantity on 1½ dessiatines. The ground on which the lentil was sown was not suitable thereto, as the field was first prepared for rye and had been enriched the preceding year with 200 wagon loads of manure. The lentil was sown in rows on May 7 with the aid of a drill. Notwithstanding the dry weather, the first sprouts appeared on the fifth day, although the grain was sown pretty deep. At the beginning of June, the field had to be weeded, as much tare had grown. Owing to the soil being so rich, notwithstanding the dry summer, the stems of the lentil attained a height of 14 inches. In the beginning of June, the lentil began to flower, but not uniformily, owing, probably, to the great development of the stems. It was very difficult to fix the time for harvesting, as it ripened very unevenly. The gathering of the crop was begun on August 7, when the greater part of the siliques was ripe. It was cut with scythes. The crop dried with great difficulty, as the stalks were large and juicy; hence it was put up in cocks, like hay, in rainy weather and spread out on bright days. The lentil was thrashed by a thrashing machine, and 46 poods of grain and 120 poods of straw were obtained from this sowing. The straw was of very good quality, and is good fodder for horses. The grain of this lentil is of very agreeable taste and very nutritious. The raw grain is so palatable that it had to be stored away from the peasants and laborers. The peasants find lentil soup a delicacy. Lentil sauce, if well prepared, is very good with meat.

The first efforts at growing lentils in the government of Tula were not very satisfactory, the result probably of the abnormal conditions, such as the late sowing, the unfavorable soil, and the wet weather during harvesting.

From the foregoing, it is to be seen that the lentil will grow in the government of Tula; that it bears dry weather well; that it must not be sown on rich soil; that in years of famine, as in 1891, lentils can very well replace winter cereals if the latter fail, and therefore save many localities from hunger. Besides, the lentil is more nourishing than cereals.

The cost and profits of cultivating one dessiatine (2.6997 acres) of lentils and the net produce from it are estimated as follows:

46 poods of lentils at the market price of 75 cents per pood		$34.50
1 dessiatine of land	$10.00	
Plowing	.50	
Harrowing	.15	
Second plowing and harrowing	.50	
8 poods of grain	6.00	
Sowing in rows with drill	1.00	

Weeding	$1.50	
Cutting	.75	
Cocking	1.00	
Thrashing, etc	1.00	
		$22.40
Net profit per dessiatine		12.10

The Department of Agriculture procured seed of Moravia lentils and distributed it among several Government schools and farms for purposes of experiment.

In the Uman agricultural school, a field where formerly potatoes had grown was used. In the autumn of 1890, the field was plowed 6 inches deep and was left unharrowed. In the spring, it was harrowed, and, on March 28, the grain was sown in rows with the aid of a drill. Six poods of grain per half a dessiatine were sown. On March 31, the field was smoothed with a roller. In the beginning of April, rains began to fall, which favored the crop, so that toward the middle of April, the field was quite green. The dreadful drought that then occurred, and which had such a bad influence on the crops of oats, barley, pease, and other spring cereals, affected the lentil very little. It is true that it grew very slowly, but, while pease began to dry up and perish, the lentil continued green. Partly in consequence of the drought, and partly because the lentil was sown on a potato field, there were very few weeds to disturb the growth, so that five women weeded the field in four hours. The crop began to ripen at the end of June, and by the middle of July, it was harvested. At the end of July, it was thrashed with a flail, winnowed by a winnowing machine, and sorted with the aid of a sorting machine. From this half dessiatine, 30 poods of sorted grain and 25 to 30 poods of straw were procured. The straw made excellent fodder for horses and cattle. In the beginning of August, several half-pound lots of lentil grain were distributed among different persons, in order to see how it succeeded as a food. The report was unanimous in favor of the new food as a sauce. The price was then fixed at 3 cents a pound. Local merchants do not give more than 65 cents a pood. The grain obtained from this sowing was a little coarser than that sown and shriveled, owing to the drought and heat. It had suffered neither from diseases nor from insects, notwithstanding that pease were greatly affected in Russia during that year by a disease called "zernovik." The field was in good condition after the lentil crop, so that a winter wheat called "sandomirka" was successfully sown therein.

Notwithstanding the drought, the lentil crop yielded 60 poods per dessiatine. If the conditions were more satisfactory it would probably have been 80 or 100 poods per dessiatine. Estimating the product at 80 poods, the gross receipts will amount to $52 per dessiatine if the selling price is 65 cents per pood.

Cost:

Autumn plowing	$2.25
Spring harrowing	.40
Weeding	1.70

Cost—Continued.	
Second harrowing	$0.40
Smoothing down	.20
Sowing	.40
Cutting	.30
Transport from the field	.50
Thrashing	.13
Winnowing and sorting	.37
Total cost	6.65
Net receipts	45.35

Thus the cultivation of lentils is not only advantageous with reference to the economical side of the question, but also to the technical, as, after lentils, the field remains in excellent condition for winter wheat.

From what is said above, it may be concluded that the cultivation of the lentil, which can serve as food, has a great future in Russia, the more so as it can bear drought and gives, besides the grain, a large proportion of fodder for cattle and horses.

Its trade importance is also considerable, as it is in great demand abroad. This sort of lentil is exported from western Europe to the United States in considerable quantities, and commands high prices. In Hamburg, it is sold at $1.05 per pood. In St. Petersburg it is sold at 15 kopecks* per pood.

J. M. CRAWFORD,
Consul-General.

ST. PETERSBURG, *April 26, 1894.*

UNITED KINGDOM.

In Morton's Cyclopedia, kindly sent to me by Sutton & Sons, seed-growers of Reading, I find the following:

Notwithstanding the common use of lentils in cookery, there is no doubt that they are very unwholesome. They are not only hard and difficult of digestion, but were believed to have been the cause of the severe scrofulous disorders common in Egypt, where they are largely used. Haller says that they are so flatulent as to kill horses.

This opinion, so confidently expressed as to the unwholesomeness of the lentil, appears to be quite opposed to that of most, if not all, of the modern authorities. The statement that follows, from Smith's "Dictionary of Economic Plants," is in direct contradiction:

Lentil (*Lens esculenta*, better known as *Ervum lens*), a weak, pea-like, wing-leaved annual of the bean family (*Leguminosæ*), cultivated in Egypt and Palestine from remote antiquity, its seeds being the lentil of Scripture spoken of in the time of Jacob, of which the red pottage given to Esau was made. It is still cultivated in southern Europe and many parts in the East. The meal of lentils is very nutritious, and in this country is advertised as an invalid food under the quack names of "Ervalenta" and "Revalenta."

*On April 1, 1894, the United States Treasury valuation of the ruble was 37.2 cents. There are 100 kopecks in a ruble.

The following note by Mr. Whitehead, technical adviser of the intelligence branch of the British board of agriculture, reaches me through the courtesy of the director of the said branch:

I have not known lentils (*Ervum lens*, Linn., *Lens esculenta*, Moench) grown in Great Britain, but Prof. Buckman says "it is easily cultivated in England, and is worthy of attention and capable of yielding a large supply of highly nutritious and wholesome food." There are two indigenous species of lentil—*Ervum hirsutum* and *Ervum tetraspermum*. These are only troublesome weeds in corn. In France lentils are grown near Paris to some considerable extent, chiefly for culinary purposes. The seed is sown in March, as it will not stand the winter of the north of France.

The true lentil (*Ervum lens*) would not stand a British winter. It might prove a useful plant to grow for forage or for seed for feeding purposes if sown in March.

But it may be stated that it is not cultivated in this country.

I believe the species of lentil whose seed is imported largely into Great Britiain is the *Ervum lens* alone.

It is impossible to say what may be the volume of the import of lentils into the United Kingdom, as they are not distinguished in the official statistics from the other divisions of leguminous seeds.

I append, however, official figures, showing the quantities of pease and beans grown in and imported into this country. It will appear from these figures that there is a large domestic consumption of pease and beans, and it follows naturally that proper business methods might develop an enlarged market for lentils. As it is, the consumption of lentils is growing. They are to be found on sale in every large grocery store in Great Britain, and they are chiefly used for soups, salads, and in side dishes. They are seldom served as a vegetable alone.

Lentils are well known in some of the poorer parts of London. I am told that their introduction there is comparatively recent, and that it is due to the instruction in cooking that is now given in certain of the board—or, as we should call them, public—schools in these districts.

They are not grown by Messrs. Harrison & Sons, of Leicester, who make a specialty of pease and beans, and who include in their elaborate catalogue a great variety of different sorts.

In the United Kingdom, in the year 1892, there were grown 7,054,275 imperial bushels of beans, being an average of 22.38 bushels per acre upon 315,136 acres. The yield of pease was 5,028,494 bushels, being an average per acre of 25.85 bushels upon 194,517 acres.

Imports into the United Kingdom of beans and pease from 1887 to 1891.

BEANS.

Countries from which exported.	1887.	1888.	1889.	1890.	1891.
	Cwts.	*Cwts.*	*Cwts.*	*Cwts.*	*Cwts.*
Algeria	38,780	48,599	15,480	21,630	30,832
Australasia (New Zealand)	17,982	24,971	64,977	66,478	48,039
Egypt	1,438,465	1,254,979	980,226	2,008,499	2,428,460
France	9,410	13,252	16,561	27,532	27,918
Germany	362,869	209,927	111,664	48,679	30,989
Italy	16,617	128,861	84,703	6,028	1,992
Morocco	188,682	818,660	1,486,714	617,230	458,414
Portugal	69,457	84,383	122,210	100,908	59,845
Russia:					
Northern ports	7,238	32,746	38,251	57,711	30,871
Southern ports	198	14,744	229	.....	.....
Spain	323	33,027	42,460	5,300	120
Sweden	52,993	18,970	13,129	7,739	13,748
Turkey	246,254	316,687	579,533	357,589	507,514
Other countries	39,694	14,172	23,442	19,595	33,671
Total	2,488,962	3,013,978	3,579,579	3,344,918	3,672,413

PEASE.

Canada	1,049,973	464,841	570,749	828,901	939,550
Germany	293,512	465,852	92,757	46,324	163,501
Holland	42,719	42,557	68,214	51,604	61,212
British India	608,567	844,169	116,911	57,383	364,835
Morocco	6,518	2,994	51,313	84,835	22,041
Russia:					
Northern ports	244,650	382,019	399,369	120,236	176,366
Southern ports	3,200	35,043	18,884	2,227	17,732
United States:					
Atlantic ports	714,729	176,481	347,790	624,445	620,826
Pacific ports	.....	.....	.....	.....	4,300
Other countries	28,489	20,420	29,192	36,533	49,018
Total	2,992,357	2,434,376	1,695,179	1,842,488	2,419,381

NOTE.—All countries and possessions from which upwards of 20,000 cwts. of beans or pease, respectively, were imported in any one of the years quoted are separately distinguished in the above table.

PATRICK A. COLLINS.
Consul-General.

LONDON, *March 10, 1894.*

TECHNICAL AND TRADE SCHOOLS.*

INTRODUCTION.

The Department has always taken a lively interest in the subject of technical education, and has, from time to time, given to the public reports of consuls showing the condition and progress of technical and manual-training schools in foreign countries. Among the many reports hitherto pub-

*The first sixteen of these reports were prepared by Consul Monaghan, of Chemnitz, and were received from time to time—from February to June 6; the seventeenth report was prepared by Commercial Agent Peters, of Plauen, and the eighteenth by Consul Muth, of Magdeburg. A report on the "Cheefoo Industrial School" immediately follows the German reports.

lished, the following, which appeared in the monthly series of CONSULAR REPORTS, may be mentioned:

Title.	No.	Page.
Woman's Work at Reutlingen	11	487
Industrial Schools of Austria	13	420
Technical Schools of England	25	59
	39	140
	49	198
Nautical Schools of Italy	87	65
Art Schools of Munich	34	785
Agricultural Schools of Prussia	66	337
Industrial Schools of Reichenberg	94	513
Trade and Technical Schools in Germany	95	177
Schools of Agriculture in Mexico	108	107
Housekeeping Schools in Germany	115	661
Industrial School at Pforzheim	116	3
Imperial Technical School of Moscow	136	161
Technical Education and Manual Training Schools in Europe (reports from Austria, Belgium, Germany, Italy, Netherlands, Russia, Sweden, and Switzerland in answer to a Department circular)	157	187–287

"Technical Education in Germany" (the Royal Technical High School, of Stuttgart) was published in Commercial Relations for 1879, vol. 2, p. 773.

In 1888, the Department published in a separate pamphlet (of which 4,000 copies were distributed) the valuable report of Mr. J. Schoenhof, consul at Tunstall. This was entitled "Technical Education in Europe." The investigation of Mr. Schoenhof of the French system alone were given in this publication, which was meant to be the first part of a series unfortunately not completed. The edition of this valuable work has been for some time exhausted. It was not stereotyped at the Government Printing Office. If plates had been made, it would have been reprinted as an appendix to No. 157.

GERMAN TECHNICAL AND TRADE SCHOOLS.

[(1) German Merchants' Unions; (2) Commercial High Schools; (3) Mercantile Apprentice Schools; (4) Tanning School of Saxony; (5) Masons' and Builders' Schools; (6) Plumbers' School; (7) Wandering Teachers (*Wanderlehrer*); (8) Agricultural Schools; (9) Mittweida Technicum; (10) The Clock School at Furtwangen; (11) High School for Weaving at Chemnitz; (12) Weaving School of Müllheim; (13) Woolen Weaving School at Spremberg; (14) German School Unions; (15) Chemnitz Knitting School; (16) Tool and Machine Making Schools.]

1. GERMAN MERCHANTS' UNIONS.

The merchants' or business men's unions are practical schemes to fit young men for business and afterwards help them to get places. They bear no resemblance whatever to our so-called commercial clubs. The latter, with an annual banquet and after-dinner speeches, do little good compared with the former. The strongest of these union schools is the Hamburg Union for Commercial Clerks. It numbers upwards of 42,000 members, has a capital of 125,000 marks, has its own schoolrooms, and has a fine site near the Hamburg Bourse, on which it is soon to build. During its for

odd years of existence it has found places for 40,000 young men. It is the subject of English and French emulation. It is doing a work that deserves the highest praise. The English Board of Trade Journal, the Monde Economique, the Moniteur Officiel du Commerce, and the Figaro are constantly calling attention to its wonderful work.

The unions grew out of a most commendable desire to help young men out of work and to fit them for employment. For almost forty years they have gone on growing, always going forward; never, no matter how dull the times, going backward. The unprecedented prosperity of the past forty years in Germany is due, in no small degree, to their work. German influence in England, Australia, South America, and the United States is due in a great degree to these unions. Kept in constant contact with home by correspondence, the emigrating clerk or merchant makes himself an agent for the Fatherland. Kept close to each other by the bonds of such unions and a passionate fondness for their mother tongue, unconsciously, it may seem sometimes, but nevertheless with certainty, they find foreign markets for home products and situations for German clerks. "If knowledge is not power, it shows the way to power," said the leading article of the first number of the journal published by the Hamburg union. These organizations give out and spread a great deal of knowledge.

I should say that the placing of clerks is the principal object of the Hamburg union, although it neglects no one of the objects before indicated. Last year the Frankfort union placed 2,121 and the Leipsic union 2,107 clerks. All the unions in the Empire placed upwards of 13,000 clerks.

The unions have invalid, widow, old-age, and orphan insurance departments; sick and burial funds; commissions for support of members out of work, etc.; departments for improvement of apprentices; commercial schools for courses of lectures, for social entertainments, for helping needy clerks; correspondence with foreign branches, etc.

The Hamburg union has a weekly paper published in the interest of the unions. It is splendidly edited, and has a large subscription list. Other unions make special arrangements with local papers for the publication of their programmes and announcements and to give good reports of meetings and lectures.

There is a question box left open during the week. Written questions put into the box are answered at subsequent meetings. Many of the unions have boards of judicial persons who answer difficult legal questions free of charge.

The costs attached to membership are the following: Apprentices pay $1.50 for the entire time of apprenticeship; new members pay $1.43 a year, and, after ten years membership, 72 cents a year.

The benefits belonging to such unions are simply incalculable; no insurance company can compare with them. They give almost irresistible impulses to young men to work their way upwards. If German clerks are the best, hardest working, safest, and most reliable, and if German agents

are the best informed and most pushing, it is due, in a large degree, to lessons learned in these unions. Their influence, from the very modest beginnings, is to-day universal. Originating in small groups, the unions have gone on growing—large in number, powerful in influence for good, and many of them rich, with beautiful buildings, fitted up in a simple but artistic manner, pleasing the most æsthetic taste.

The one in Chemnitz has its home in the bourse. It has a large library of excellent German, French, and English books. Its membership is made up of business men, young and old, in all branches of industry. To no evening in the week do I look forward with so much pleasure as to the meeting night of the union, and no other night in the week is to me so profitable.

In Nuremberg, besides a beautiful building in which the union meets, it has a separate building devoted to school work. This union is one of the most energetic, active, and enterprising in Germany. Its members manage to get reduced rates from theaters, concerts, bathing places, etc., saving more in three months than would pay the annual tax many times over. Its home (the house) cost $45,470, and is elegantly fitted up, having all the comforts of a good club, with none of the features of a clubhouse to lead to unnecessary expenses and dissipation. It has a well-patronized reading room with 4,505 books in the library, and lent out 16,534 books last year, against 11,454 in 1892. The list of languages studied in the club includes French, English, Italian, Spanish, Russian, and, of course, German.

The Leipsic union, though one of the youngest, is one of the richest and most progressive. At no time in its history has it lagged. It is constantly pushing its way to the front. Its plan of organization and its list of languages are similar to the others. Its home is one of the most attractive and beautiful buildings in a city second only to Berlin in architectural beauty.

I have not deemed it necessary to go into more definite details. My purpose is to point out the many factors that furnish Germans in their young years with training that fits them to be capable, patient, persevering—careful and yet enterprising—business men. I want to show why it is that they succeed against all competitors. It is not that they are more gifted than others; it is because they work harder and study longer and more systematically. When one looks for a reason why the clerks of London are 25 to 35 per cent German, he finds it running back in golden links to these unions.

Such unions are found in Egypt, the United States, Canada, Brazil, Belgium, Bulgaria, Bukowina, Dalmatia, Galicia, Denmark, Norway, Sweden, Greece, islands of the Mediterranean, Great Britain and Ireland, Italy, Sicily, Japan, Luxemburg, Montenegro, Portugal, Roumania, Switzerland, Servia, Spain, and Turkey.

The Hamburg union, during 1893, found places for 4,119 persons; in 1892, for 3,754. In the last month of last year, notwithstanding the dull times, it sent 292 persons to situations, against 287 in the last month of the

year before; 10,298 persons joined it in 1893, against 9,934 in 1892; it numbered 42,364 members in 1893, against 38,792 in 1892; of these, 5,301 are solidly established business men, and 67 are merchants who make voluntary contributions to its support. Its pension department numbers 4,955 members, men and women; it has a capital of 1,950,000 marks, and paid out to sick, wounded, and widows 16,920 marks in 1892.

The liberality of these organizations is seen in the fact that sick members are allowed to choose whatever physician they please, the union paying him. Last year, 116,000 marks were paid out to doctors, undertakers, etc., from the sick fund. As auxiliaries to the German State schools, a sort of university extension, they merit the support received and all the good that has been said of them.

Translation bureaus.—Not satisfied to await the necessarily slow progress in foreign languages, and ever anxious to extend trade, the German commercial unions have opened in various parts of the Empire bureaus in which letters from foreign countries may be translated under absolute secrecy as to their contents. These bureaus are open to everybody. They translate letters, written documents, and printed matter. The translators are, as a rule, teachers of languages, and are sworn to keep secret the contents of letters, documents, etc., translated. The unions look for, hire, and pay only the best and most reliable translators, but, nevertheless, refuse responsibility for translations. The unions charge members about 12 cents for every fifty words, and nonmembers pay not quite 24 cents for every fifty or less number of words. Translations of especially difficult letters, documents, etc., or of technical works must be paid for under special prices and contracts. Payments must be made in advance. The matter to be translated is sent at once to the translator, who is pledged to return it, translated, within twenty-four hours if possible. Letters, documents, etc., from outside must be accompanied by payment at the rates given above and postage. Each letter, document, etc., to avoid loss, mixing, or confusion, must bear, on a conspicuous place, the address and name of the sender. The bureau I have in mind—that of Nuremberg, connected with the Union Mercury (*Merkur*)—is able to translate in French, Italian, Spanish, Portuguese, Roumanian, English, Danish or Norwegian, Swedish, Dutch, Russian, Polish, Bohemian (Czechic), Bulgarian, Ruthenian, Servian, Slavonian, Slavocian, Hungarian, new Greek, and Esperanto. It can obtain translations of Turkish, Persian, Arabic, Syrian, Chaldean, Sanscrit, Ethiopian, and Coptic. Prices for the last are arranged under special contract, and are considerably higher than the others. These bureaus by no means discourage the learning of languages; on the contrary, they seem rather to encourage it.

2. COMMERCIAL HIGH SCHOOLS.

Commercial high schools are being opened all over the Empire. Trade is giving education new channels and new impulses. The business ability of Americans, especially their business education, has called out here a competitive system. It is carried further than with us. is broader and deeper.

Our commercial schools make good bookkeepers and quick accountants—natural tact does the rest.

The commercial high school at Leipsic was opened by the Merchants' Guild in 1831. This guild expired in 1887, since which date the school has been under the chamber of commerce. The city council has a supervisory control, but since 1880 the Department of the Interior has had supreme authority.

Courses.—The full course is for three years. The work of each year aims to give the boys the very best training for mercantile careers, but there is enough of history, geography, chemistry, etc., to make out a well-rounded education. The course is divided into three classes, class 3 being the first year. The following shows the curriculum and the hours of study per week in each of the three classes:

Studies.	Classes.		
	III.	II.	I.
Obligatory.	*Hours.*	*Hours.*	*Hours.*
German	4	3	3
English	5	4	4
French	5	4	4
Mathematics	3	3	4
Commercial arithmetic	5	3	2
Physics	3	2	.....
Mechanical technology	.....	.....	2
Chemistry	.....	2	2
Practical knowledge of commodities	.....	.....	1
Geography	2	2	2
History	2	2	2
Commercial science	.....	2	.....
Commercial law	.....	.....	1
Counting-house work	.....	2	.....
Correspondence	.....	.....	2
Bookkeeping	.....	.....	2
Political economy	.....	.....	2
Writing	3	2	.....
Drawing	2	2	2
Gymnastics	2	2	2
Optional.			
Spanish	.....	.....	2
Italian	.....	2	2
Shorthand	2	1	1

The courses cover all essentials. Particular attention is given to modern languages, which now play a very important part in commercial life. To these no people give more attention than do the Germans. This accounts for the large number of German clerks and agents employed by English and even French firms. The teachers of foreign languages are usually natives of the countries whose languages they teach. Germans will not waste time learning English or French from Germans when it is possible to get these languages from natives of England and France. Commercial knowledge, office work, prevailing principles or laws of trade, rules, duties, privileges, etc., are gone into, examined, analyzed, and compared. The school neither

aims nor hopes to replace actual experience; but it does aim and does hope to build the boy up and out in such a manner as to enable him to use his eyes, ears, and faculties in acquiring knowledge rapidly; to exercise good judgment and tact; to give satisfaction, and to go on climbing. Nowhere can men now expect to make records unless their education has been such as develops the parts indicated above. The practical work in these differs in no way from work in actual life.

Scholars.—These schools are the Meccas of learning to many nationalities. Since the opening of the Leipsic school it has educated 14,110 students; of these, 2,341 were foreigners—194 English. English educationalists sometimes affect to make light of German schools and progress, yet England sends her sons over here year after year to be educated. An English commission was recently sent to inquire into German school methods.

The school building.—The school building is plain in its style of architecture, well lighted and appointed. Every want is supplied. Liberal hands pay for all it needs. There is a central building, with two wings. There is a beautiful hall for festivals and public events. The class rooms for chemistry, natural philosophy, and drawing are models. There is an excellent library of 6,000 volumes and a large, well-equipped gymnasium. There are twenty-one recitation rooms. In a word, the building has all the conveniences and requirements known to architecture, science, and sanitation. There are apparatus and implements of all kinds, collections of raw and manufactured articles common to commerce, a large and valuable collection of coins, minerals, etc.

Admission.—Applicants must be 14 years old at least, must apply in writing to the director, and must have certificates of birth and certificates of acquirements and conduct. Examinations are held to place persons according to attainments.

Candidates for Class III (the lowest) are examined in German, and are expected to write a fair grammatical composition (foreign candidates are not expected to be proficient in German, but they must understand it when spoken or written); elements of French, including irregular verbs; outlines of universal history and the history of one's own country; geography in general, European in particular; and arithmetic. A thorough knowledge of addition, subtraction, multiplication, and division, vulgar and decimal fractions, and proportion is required.

Tuition.—The entrance fee is 10 marks ($2.38). The yearly tuition (in two payments) is $85.68. The shortest possible term is one year. If a scholar is expelled, payment will not be demanded for term not entered upon.

Notice of removal of pupil before the three years' course is finished must be given the director in writing. Such notice must be sent in before February 15 for pupils leaving at Easter, and before August 15 for pupils leaving at the end of September. Omission of notice necessitates payment of tuition for the following term. Foreigners must secure surety in Leipsic or pay in advance.

Board and lodging.—Board and lodging are looked after by the director. This is obligatory in the case of foreign pupils. The good name of the school and the boys' own welfare demand it. Persons intrusted with the care and keeping of pupils must give them wholesome food, clean lodging, and intercourse with educated, well-bred people. The students' health, social life, general conduct, and school work must be looked after; hence the necessity of living in a family selected by the director. Obedience, punctuality, and good order are demanded of all pupils. Many of the teachers take boys into their own families. The rates are reasonable, and, as a rule, a little higher for foreigners than for natives, but are never excessive.

3. MERCANTILE APPRENTICE SCHOOLS.

Besides ordinary, high, city, and other *Handel*, or commercial, schools, but connected with them, Germany has what are called merchants' *Fortbildung* schools. The best translation of *Fortbildung* is "forward building," but it needs a sentence to explain its meaning. The nearest thing to it in our country entirely analogous is "university extension." Here, however, attendance at these schools is compulsory. Scholars, after ending their course at the common schools, are compelled to go for two, and in some parts of the Empire three, years more to a *Fortbildung* school. Of these, there are half a hundred different kinds. Each trade strives to have one. Choice is left to parents as to which school they will have their sons attend. In cities, the *Handel*, or commercial *Fortbildung*, schools have the preference. Usually parents select a school that will give their boys information useful in whatever trade or calling they elect to follow.

As long ago as 1817, E. W. Arnoldi, founder of Gotha's famous bank, endowed and opened the first of Germany's merchant *Fortbildung* schools. From 1817 to 1840, only four of these schools were established. In the five following decades (1840–1890), there were established 9, 17, 17, 35, and 79, respectively, making a total of 161, counting that established in 1817 and three others for which the dates of establishment are not given.

The following shows the location of these schools and the numbers in each locality in 1866 and in 1890:

Location.	1866.	1890.
Bavaria	3	12
Hanover	5	10
Saxony	15	43
Würtemberg	4	7
Baden	.....	11
Prussia	7	61
Total	34	*144

* This leaves 17 schools unaccounted for, according to the consul's previous showing, and 21 according to the statement immediately following.

Saxony, the industrial heart of the Empire, far inland, among hills, hundreds of miles from the sea, with 3,500,000 inhabitants, has 43 such schools, against 61 in Prussia, with 28,000,000 population. The world comes to Leipsic's universities and Dresden's art academies, but the industrial-art schools of Chemnitz, Annaberg, Glauchau, and Plauen make it possible for Saxon goods to be seen and sought for in the world's great centers and important cities.

Of Germany's 165 or more commercial *Fortbildung* schools (there were 165 in 1890) the State established 1; the cities, 23; chambers of commerce, 11; merchants' unions and guilds, 20; mercantile associations, 71; *Kuratorien*, or commercial-school unions, 33; private persons, 6. It must be remembered that there are throughout the Empire obligatory or regular *Fortbildung* schools, which every scholar coming out of the common school must attend for two or three years, unless he adopts one of these 165, or one of some other calling.

Business men have built up these schools. They saw the need of them, and went to work with word and deed until they were established. They are by no means what their best friends want, but they are growing more numerous and more nearly perfect every year. Recently, in England, a writer warned his countrymen about Germany's tactics. Her commercial scouts are in all parts of the world. No nation knows so well as England that they are the advance guard of all Germany. Saxony's boast that she is beating England in the world's markets is by no means idle or empty. No country can keep its place in the commercial world unless it builds such schools, and builds the very best it can afford. Big books are published here on the merchants' *Fortbildung* schools alone. The books on the various schools would fill a large library.

The State, city, and unions support these schools. So necessary and useful are they that merchants would support them to-morrow, did city and State take away their support. Men with whom I talked told me that their best friends hope to see a continuation of their present support, but on a more uniform plan of general education. My study of the system justifies this judgment. A uniform system of bookkeeping, mathematics, etc., might easily be adopted, leaving to localities optional studies, such as languages and wares. In the north one needs Danish, Swedish, or Russian; in the south, Italian or Spanish; in the west, French; abroad, English and German. The support should be generous and judicious. Teachers are worthy of their hire, as well as workers in other fields. It is poor economy to pay them wretchedly or to keep them looking out for a better living. The Greeks were wiser in their day and generation than either the Germans or ourselves. Some of the support comes from the payments for tuition by scholars. I know cases where it had to be increased to keep out scholars, so great was the rush, and other cases where it had to be reduced to coax them in. Unlike our countrymen, the Germans do not very generally endow schools of any kind; nor, for that matter, are they very generous in

endowing anyway, but once show them the necessity for such schools and they organize to get them.

The attendance is, as a rule, pretty good, and is annually growing better. Twenty thousand is the number put down for Germany, against 8,000 to 9,000 in about sixteen commercial courses in Paris, 46,000 in commercial courses in Austria, and, to the astonishment of Germans, 51,400 scholars in two hundred and sixty-nine private commercial schools* in the United States in 1890, against 3,800 in twenty-six schools in 1870. It is this great greed of knowledge in our country that encourages the belief that we are to beat the world in such institutions.

The attendance is compulsory for scholars who choose these schools in preference to the regular State *Fortbildung* school. It is as schools for such scholars that I write of them as distinct schools.

The hope has often been expressed that such schools or their courses would be added to the grammar schools. As constituted at present, they are somewhat "mixed." The hours are different in different cities and states, some having hours in the morning, others in the evening, and not a few being open for instruction on Sundays. It is claimed that a more uniform system will come with time. Schools might be better graded in classes; so, too, the common schools might be made to prepare the boys better for future work. With us, such schools, along with industrial, industrial-art, and technical schools, should replace our high schools, and grammar masters should be made to teach. We now waste enormous sums of money paying grammar masters, not for teaching, but for doing police duty.

Mannheim's merchants' *Fortbildung* school is a model one. It has 132 scholars, all of whom study French, of which there are thirteen courses; English, eight courses and 42 scholars; Italian, two courses and 8 scholars; Spanish, one course and 2 scholars; German, orthography, and style, two courses and 41 scholars; commercial arithmetic, two courses and 32 scholars; double-entry bookkeeping, one course and 20 scholars. The school is one of the most active, as it is one of the very best, of the *Fortbildung* schools of Germany. In sixty years, the merchants of Mannheim have made what was, early in the century, a dead "residential" city, out of which the Elector of Bavaria had moved with his court to Munich, one of the most important industrial and commercial centers, not only of Germany, but of Europe. To the above courses the school urges the addition of commercial and exchange law, principles of political economy, commercial geography, knowledge of wares, and six languages—Dutch, Russian, Danish, Norwegian, Swedish, and Portuguese—as supplementary to the course and languages before mentioned. In the memorial of 1890, we find that 25,000 applications have come annually to the merchants' unions of Berlin, Bremen, Frankfort, Hamburg, Leipsic, Mannheim, and Munich. The memorial, from which I quote, goes on to say that, good as the schools are, they are by no means

*Our schools (commercial colleges, etc.—good but expensive) have no resemblance to the *Fortbildung*, commercial *Fortbildung*, or commercial schools in Germany.

what they might be, since they answer not more than half of the needs of the times. It urges that boys are taken at too early an age into business. It would be better to build these boys up in good schools in accordance with the needs of their after life, giving them, of course, as the basis of all, a good common-school education. On parents is to be urged the teaching of faithfulness to duty, good manners, good order, and truthfulness. The memorial urges principals or employers to interest themselves much more than they sometimes do in the work and studies of their apprentices. Parents are urged to put their boys with good, well-known principals, even at half the salary they might get elsewhere, to the end that the boys shall obtain the very best training. The memorial condemns the custom prevalent among certain firms of working only with apprentices. A judicious mixing of experienced men and boys is best. It advises that merchants join to aid the schools; that they establish unions and committees to coöperate with the schools to see that the apprentices have time to attend, and that they do attend; that they appoint commissions to hold examinations and to award diplomas. It also suggests to the management to improve the plans of study and the hours; to take steps to so reduce costs of attendance that all may attend; to secure rest from study or attendance at school on Sundays. Since fully 60 per cent of all the boys out of the *Real* schools go into business, it is suggested that it would be a good thing to incorporate a pronounced preparatory commercial course into the *Real* schools.

The need of a uniform system or plan of studies, such as I have indicated above, may best be seen from the following, which shows what was studied in certain numbers of schools: Out of 137 whose courses were obtainable, 130 taught mathematics, 129 German, 128 bookkeeping, 102 French, 98 stenography, 94 English, 85 science of commerce and exchange, 81 ornamental writing (*i. e.*, beautiful penmanship), 78 geography, 25 history (commercial history exclusively, 9), 20 knowledge of wares, 9 political economy, 13 Italian, 11 Spanish, 4 Danish, 3 Russian, 2 Dutch, 2 Swedish, 1 Polish 1 Portuguese. Of these all the schools could and should teach mathematics, German, bookkeeping, commerce and exchange, writing, geography, and history. The others might well be left to localities, *i. e.*, knowledge of wares, languages, etc.

In the commercial *Fortbildung* schools of Bremen, since 1870, 1,774 scholars have studied English, 547 French, 543 Spanish, 475 stenography, 20 Italian, 9 Danish, 5 Swedish, and not one German. In Kiel it is, or was, the same, with English first, then Danish; in Lübeck and Flensburg, Danish; in Königsberg, Russian; in Emden, Dutch; in Posen, Polish. In the *Fortbildung* commercial schools of Frankfort-on-the-Main, more attention was paid to French than to anything else.

There was a man in my office yesterday who has built up one of the greatest factories in Germany. He does not speak English, for he had no opportunity to learn it when a boy; but he takes American illustrated technical journals, looks at the pictures, and, when anything interests him,

has its accompanying article translated by his sons, all of whom speak English and one of whom spent six or eight months in a leading factory in Providence, R. I.

England, of late, has become alarmed at the number of German clerks employed in London, Liverpool, Manchester, Nottingham, etc., and as foreign agents of English houses in India, South America, etc.; not because they are cheaper, but because they speak Spanish, French, and English, and because they are patient and systematic.

These schools are essentially practical. They are by no means perfect, but they are striving to do great good. Recognizing their work in recent developments, their friends are urging that they be made better. What could be wiser or more practical than to permit boys, compelled by law to attend the regular *Fortbildung* schools for two or three years after they leave the common schools, to choose attendance at these instead? The rules and regulations in regard to work, in the case of such boys, are just as strict as in the regular schools. Not a city in the United States—for our industries are spreading into all the States—should be without at least one or more such schools.

4. TANNING SCHOOL OF SAXONY.

People ignorant of the German character say that the Germans are theorists; but, in fact, few, if any, people are more practical. Nations competing with Germans should keep the fable of the hare and tortoise in mind. They copy, buy, and take from others; imitate, arrange, combine, and invent; and, when they do invent, they take out letters patent in every country in which they hope to sell their inventions or see them used.

If an industry languishes, immediately a commission inquires into the causes and recommends remedial measures, among which, usually, is the advice to establish technical or industrial schools devoted to the branch of business under consideration. In late years, tanning had been going down in the Empire. France and the United States were fast forging to the front, the latter especially in machinery and methods of good, quick work. To remedy this, a tanning school, the only one in the world, was opened at Freiburg, in the heart of Saxony.

In England, Austria, and France, there are schools in which the chemistry needed in tanneries is taught; but there is no such school as that of Freiburg. Freiburg has a population of 28,000. The school was opened in 1889. Its object is stated in its name. In it one can learn the practical and theoretical preparation, tanning, and finishing of leathers. It is supported by the State, which gave it last year 5,000 marks; by the city, which gave it 1,500 marks; and by friends, who gave it 2,385 marks (a total of $2,115). Besides money, presents of hides, rare pieces of leather, barks, nuts, etc., are sent to it; also, magazines and technical papers.

Its scholars come from all parts of the world. Every year, since 1889, scholars from Prussia, Austria, Roumania, France, Meiningen, Russia, Würtemberg, Holland, Switzerland, Bavaria, Oldenburg, and Saxony, have been in attendance.

The school building is a modest, two-and-a-half-story stone structure, with no pretensions to architectural beauty. It is to be replaced by a larger, better arranged, and more beautiful building. The land for it has been given by the city.

For practical work, the school is fitted up from cellar to garret with all kinds of machinery, from the steam engine furnishing power to the finishing machine that turns out the finest patent or calf leather. There are rooms and machines for the raw skins, lime baths, vats, and cutting, rolling, pebbling, stretching, and pressing machines. I may say here that every machine in the school was invented in the United States, and that the director worked ten years in the tanneries of the United States.

The students give most of their time to studies of use in tanning, preparing, and finishing leather. They learn about oxygen, alkalies, carbo-hydrates, albumenoids, and fermentation. They study text-books and hear lectures, but, besides, they work in the tannery and laboratory. The course is inorganic, organic, practical inorganic, and practical tanning chemistry; physics, microscopic demonstrations, mathematics, correspondence, bookkeeping (single and double entry), commerce, banking, drawing, mechanics, instruction as to what to do in cases of accidents, injuries, etc.

Besides the director, there is a corps of chemists, scientists, and teachers, at the head of which is Dr. von Schroeder. Under these, again, is a regular corps of practical tanners, who take a hide, as it leaves the animal, through lime baths to the polishing rolls and processes, watched at every stage and change by the students. To this work (study), the students give at least ten hours a week—two hours daily. Hides to the number of 1,708 were tanned and finished last year; among them were all kinds, from the coarsest cowhide to the finest finished "patent" and French calf. Hides from all parts of the world are experimented on annually, and with all kinds of tanning barks and materials.

The processes of the old and new schools are shown and compared. The former give good and the latter quick results; the former are expensive, the latter cheap. The processes for softening, use of ashes (lyes), lime, sweating, arsenic, etc., for removing hair, etc., are gone into most minutely by men who could step from the school into the tanneries of Paris, *i. e.*, by men who have a reputation for skill in their special lines.

There were used oak, pine, quebracho, mimosa, valonia, myrobalan, mangle, cajota, sumac, and willow barks; extracts of oak, quebracho, hemlock, and gambier. The relative values, etc., of these barks and extracts are minutely examined, compared, and noted. The old vat or vault system is compared with the newer ones in which the tanning is done by cold batteries, extracts, steam, and baths.

Practical work is done on all kinds of machines. The school has a cutting machine (invented in the United States) with a cutting surface of 8 feet 10 inches.

It is impossible to put into a few pages such an account as I should like our people to have of the benefits of such a school. The above is the brief-

est possible statement. Nothing is neglected in the school. Each department is as perfect as intelligence, skill, money, etc., can make it. I should mention that there is instruction in fats, how to select and apply them, quantities, qualities, properties, etc., and their effects on different kinds of leather. The use of machines and materials in coloring, polishing, blacking, etc., is taken up day after day—not on models and play tools, but on real hides with tools such as are used in tanneries.

During the winter, Dr. von Schroeder and others give lectures. They treat of leathers, their qualities, etc., and how to distinguish the different kinds of dyes, extracts, and barks.

Added to the foregoing, are trips to tanneries; to woods, to see the bark on trees; to store houses, to examine kinds of bark with a view to buying wholesale; and to experimental stations, to see processes or tests being made.

The railroads reduce rates for such excursions. The State marches hand in hand with every progressive industrial effort.

On the occasion of one of my visits to the school, I found the director (Mr. Haenler) and Dr. Passler, teacher of chemistry (to both of whom I am indebted for much courtesy and information), standing at a large table, on which was a side of leather spread out for examination, and around which stood twelve or fifteen students. Director Haenler and Prof. Passler were explaining "points" to the young men. I can conceive of no system of education more practical, instructive, or interesting.

I must mention a fact illustrating the wise and careful economy of this people. Packages of tobacco sent from South America come usually done up in undressed hide boxes. These boxes are taken to the tanneries and tanning school to be made up into leather. Besides being excellent illustrating material, they are, as I learned, the source of a very large income to the school and to those sending them.

A tanner who went with me said it would be very hard to find out anything about tanning that this school does not teach. This man, who has worked in Paris, in the United States, and in Chemnitz, said that the United States in general leads the world, France in a few things. He doubted the school's ability to rescue Germany's falling fortunes in the manufacture of leather. I do not. I have seen what her technical, industrial, and industrial-art schools have done in other branches of industry. Why not here? No school can make barks; it can, however, tell a student why the barks of Ardennes oak give French calf its softness, smoothness, etc.; it can tell him what properties—waters, lyes, etc.—he must have to get good results; it can tell him that hillside oaks—*i. e.*, on the sunny side, where the vines grow—give the richest and best barks, and so on *ad infinitum*.

The studies and hours of study per week are as follows: Tanning and preparation of hides and leathers, twelve hours; chemistry and physics (especially relating to tanning), ten hours; bookkeeping (double and single entry), two hours; commerce and exchange laws, etc., two hours; arithmetic, two hours; correspondence, one hour; drawing, two hours; free-hand drawing, one hour; mechanics, two hours.

Such a school in Lynn, Danvers, Peabody, Boston, Milwaukee, or Chicago would prove a public blessing.

I can not close without expressing my best thanks to Director Haenler, Dr. Passler, and Dr. von Schroeder for their kindness and courteous treatment.

5. MASONS' AND BUILDERS' SCHOOLS.

The masons' and builders' schools, like most of the industrial and industrial-art schools, had their origin in a desire to give young men—carpenters', masons', and builders' apprentices—just such training as would be best suited to help them to understand each piece of new work and to come "out of their time" fully qualified to enter the ranks of skilled workmen. A scholar attending one of these schools, all other things being equal, gets a very great deal more out of his period of apprenticeship than boys who do not attend them. So certain are their results that attendance in many cities of the Empire is being made compulsory, employers being compelled to give time to apprentices to attend and to see that they do attend.

This school gives the boys, besides a good, practical, general education, the best and most recent practical and theoretical knowledge obtainable. It teaches them to be careful, conscientious, painstaking, skillful, scientific workmen. The best teachers are employed, and the most recent and most approved methods and machinery are used. There is no extravagance in building, furniture, or salaries. Politics play no part in the German school system. Merit and ability are qualifications absolutely necessary to get a place. Everything about the schools looks to be strong, useful, and in keeping with its purpose. The new schools are usually prize plans—models of architectural beauty. In some cities, the old castles are turned into schools. The Japanese palace is now used as a masons' and builders' school at Dresden.

Teachers told me that it is best for a boy to have at least some idea of masonry or building before coming to the schools. The best work is done where apprentices can come two or three hours each day, or by scholars who come evenings, and, of course, by such boys as take an interest in work and studies. Every study, every hour's work, turns or is turned toward making the students skillful mechanics. Drawing and masonry are among the fundamentals. Great importance is attached to turning the boys out qualified to go on studying; to take up every new invention or implement and apply it scientifically; to be able, opportunity offering, to become foremen, superintendents, or contractors themselves.

It is urged as best for those thinking of taking a course in a masons' and builders' school to spend at least the summer and spring, preceding the fall or winter in which they are to enter, with practical mechanics, working in the branch or trade they intend to study; that a good common-school education is an indispensable requisite; and that one or more years' work among machines and handling tools is a great preparatory help. In places where the winters are severe and masons' and carpenters' work is suspended, it is urged that apprentices put in the winter months at schools. Now that

competition is so close, skill and knowledge are almost absolutely necessary. To begin the battle for life the very best equipment is a sound, solid, practical education. This is to be got in just such schools as I am trying to describe. The ambition of the teacher is to build up his own and the school's record; to do this he does the best he can. Apprentices are often left by regular employers to look out for themselves, to pick up only odd bits of knowledge, dropped accidentally, never intentionally, for the apprentice's benefit. A graduate of one of these schools is independent of accident; what he sees and hears he drinks in understandingly.

The method of teaching that secures the best application of what is learned is regarded as the one to use. The application is not left to chance or the scholar's industry, but is obligatory and is carried out under the teachers' eyes and by their direction. Every boy must practice. By the careful and judicious changing of the work, it is kept from becoming monotonous. Lazy, indifferent lads are never left to themselves, nor to disturb others. Taken under the influence of the teachers, studied and watched, these, too, are turned out regular, careful, useful workmen. All are taught to be honest, faithful, and self-reliant.

The course is finished in four terms of twenty weeks each, of forty-six hours a week, exclusive of modeling, surveying, healing, caring for wounded, and extinguishing fires.

The conditions requisite for entrance are a common-school education and at least six months' preparation in practical work in the branch or trade to be studied. To enter a higher class it is necessary to bring a certificate from the school last attended or to pass an examination. Scholars with excellent preparatory knowledge can, if desired, be exempted from the elementary studies.

Tuition.—The winter term costs $23.08, the summer term $15.95, with $11.90 for tuition and $4.05 for writing and drawing material, doctors' visits, and medicine when sick. Each term costs a careful student $107.10, including everything—tuition, board, lodging, etc.

It is not necessary to detail here terms, rules, regulations, etc. The terms begin October 25 and end some time in August, the summer term beginning in April. The rules of admission and school regulations are based upon principles that obtain in all good schools. Scholars must work, study, keep good hours, keep good company, etc. Examinations are held at the close of each term. Certificates are given only on merit.

There are four classes, one for each term. The studies are as follows:

Fourth class (lowest).—German, arithmetic, algebra, geometry, natural history, drawing of geometrical figures, elements of construction (laying stones in walls, columns, supports, chimneys; uses of natural stones for walls, qualities, etc.; cleaning stone flooring; arches and arching, etc.; carpentry in all its details from frame work to finished salon; roofing, drawing of all kinds used in architecture and building); forms in stone and woodwork, free-hand drawing from charts, and models, round-hand writing, modeling, helping backward scholars, putting out fires.

Third class.—German, bookkeeping, algebra, trigonometry, stereometry, natural history, knowledge of building materials, statics, drawing, geometrical figures, construction of buildings, forms, free-hand drawing, and modeling—all with a turn toward application in some one of the building trades.

Second class.—Mathematics, natural history, endurance, resistance, strength, etc., of woods, irons, steels, etc.; drawing geometrical figures; construction, from cellar to chimney top; consideration of material, costs, etc.; iron as a building material, various kinds, etc.; materials for building, wood especially; building of Ls or additions, symmetry, harmony with house or main building in architectural form; bookkeeping; farm buildings, fruit, tobacco, plant houses, etc., dairies, henneries, etc.; dwelling houses of various kinds and laws and regulations; practice in drawing plans for dwelling houses and plans of all kinds; architectural forms, etc.; free-hand drawing, surveying and mensuration, care of wounded persons in case of injury, and modeling.

First class.—Mathematics, statics, high buildings, towers, etc., perspective, iron in buildings; furnaces, heating apparatus (stoves, fireplaces, etc.); cellars, repairs, and changes in buildings; water-piping, plumbing, sewerage, etc.; building materials from mortar to marble, Ls and additions, bookkeeping, supervision of work; statutes about building, etc.; agricultural buildings, barns, stalls, stables, etc.; general building science; plans, drawings, etc.; architectural styles and forms, etc.

The following table shows the hours per week of the various studies:

Subject.	Classes.			
	IV.	III.	II.	I.
	Hours.	*Hours.*	*Hours.*	*Hours.*
German and bookkeeping	2	1	2	1
Arithmetic	3	.....	.....	.....
Algebra	2	4	1	1
Geometry and trigonometry	4	5	1	1
Natural history	2	2	1	.....
Drawing of lines and geometrical figures	8	5	4	2
Statics, endurance, resistance, etc	.....	4	5	4
Free-hand and ornamental drawing	4	4	4	.....
Building, construction, and drawing	15	16	12	11
Building materials	.....	1	1	1
Building forms	5	4	2	2
Building science	.....	.....	5	6
Plans	.....	.....	6	15
Ls and additions	.....	.....	2	1
Supervision and statutes	.....	.....	.....	1
Surveying and mensuration	.....	.....	2	.....
Round-hand writing	1	.....	.....	.....
Modeling (optional)	4	4	4	.....
Helping other scholars in German	2	.....	.....	.....
Helping in arithmetic, etc	4	4	.....	.....
Care of wounded, etc	.....	.....	.....	2
Putting out fires (optional)	2	2	2	2

The course is as plain, simple, and practical as is possible in branches requiring so much and so many kinds of exact knowledge. Architecture and sanitation (embracing ventilation, water, sewerage, etc.) now play parts too important in life, especially in crowded cities, to be neglected.

Besides the foregoing, there are rigid examinations, awarding of diplomas, etc. How these are carried out, the details of studies, plans, etc., are such as will suggest themselves to persons contemplating the founding or endowment of such schools.

6. PLUMBERS' SCHOOL.

In 1877, a plumbers' school was opened at Aue, Saxony. Its purpose was to give young men intending to take up plumbing, or any branch of the trade, such theoretical and practical knowledge as would make the apprentice period pleasant and profitable. It was intended to give them, in the shortest time, business training and industrial-art, as well as practical, knowledge. It seems to have had its origin in a desire to supply plumbers' apprentices with just such a preliminary training as would fit them to understand their calling without undergoing the long years of drudgery, and practically learning very little, under the old system. Trained as in the school at Aue, they would be profiting from the first moment of their apprenticeship.

Since its foundation, the school has sent out 600 trained pupils, who have reflected credit on their teachers. Its members have kept on increasing year after year, until now no young man in Saxony intending to be a plumber who can afford it neglects a partial, if not a full, course in the Aue school, and practical plumbers prefer its graduates as apprentices.

The plan and hours per week of studies show how theory and practice may be made to go hand in hand.

Plan of studies (third class).

Studies.	Hours.	Studies.	Hours.
Arithmetic	3	Chemistry	1
Algebra	2	Projection drawing	2
Mensuration	2	Technical drawing	2
German	4	Free-hand drawing	4
Physics	1	Sketching	1
Round-hand writing	1	Modeling	2

All the studies tend toward the trade to be learned. Physics, for example, deals with the peculiarities of bodies, but especially with the nature of solid, liquid, and gaseous bodies; chemistry goes into the most important things used in the plumbing trade.

Practical work (twenty-eight and one-half hours per week) embraces use of tools, construction and care of machines; making of simple geometrical bodies from tin, to learn saving in the cutting up of material; making all kinds of practical, useful articles out of sheet iron, tin, and zinc; practice in laying wires—drawing, twisting, binding, smoothing, etc.; practice in wood-turning, setting of tin and wood together, melting, soldering, pressing, etc.; toward the end of the course, making difficult geometrical forms.

In the second class (theoretical, twenty-six hours per week) the studies are divided as follows:

Studies.	Hours.	Studies.	Hours.
Business arithmetic:			
Algebra	1	Scientific facts in the plumbing trade (lighting, furnaces, use of gas, petroleum, etc.)	1
Mensuration	1	Projection drawing	2
German	2	Perspective	1
Physics	1	Free-hand drawing	4
Mechanics	1	Technical drawing of buildings (special care in the difficult details of chimneys, roofs, etc.)	2
Technology	1	Drawing of things produced by plumbers	2
Industrial	2	Sketching	1
Trade bookkeeping	2	Modeling	1
Instructions in building (especially with a view to the masons' and carpenters' work as it relates to plumbers' work)	1		

It will be noticed, in the plans, that a great deal of time is given to drawing of all kinds.

The second class (practical work, twenty-eight and one-half hours per week) embraces the making of bath tubs and finishing fine utensils in zinc, brass, copper, and German silver; melting of metals, etc.; instruction in painting fine tin, zinc, or sheet-iron ware; making fine zinc, tin, copper, and brass objects; making sit baths, children's baths, etc.; practice in driving, riveting, flattening, and turning with the hammer; practice in cutting, pressing, turning, etc.

Work in the shop, especially relating to work on buildings after the carpenters and masons are through; ornamentation in zinc or tin on exterior parts; roof pointing, weathercocks, vases, window plumbing, etc.; practice with ladders, raising and lowering of same by truck pulleys, etc.; making supports, pulleys and arrangement of same for safety and easy manipulation; work on models.

The studies of class 1 (theoretical, twenty-three hours per week) are divided as follows:

Studies.	Hours.	Studies.	Hours.
Business arithmetic	1	Building	1
Art history	2	Scientific plumbing	1
Physics	1	Modeling	2
Mechanics	1	Projective drawing	2
Electrotechnics	1	Free-hand drawing	2
Technology	1	Drawing buildings	2
Correspondence, laws, and regulations relating to sanitation, contracts, etc.	1	Geometry	1
		Drawing	4

In the practical work of class 1, the hours are as follows: Making bath tubs, finishing fine utensils in zinc, brass, copper, and German silver, one hour; melting of metals, two hours; soldering lead with lead by means of blow pipe, two hours; gas and water installation (the first class in each term puts up, perfectly fitted, a complete and intricate network of gas and water pipes in full running order, and each scholar has to take a hand in all the

difficult parts, such as selecting places for connection, boring into the main pipe, branching off, mounting lamps, putting in water-closets, etc., and everything known about water, gas, etc., as influenced by seasons, etc.), two hours; galvanic plastic work, nickel plating, separation of elements, regulation of batteries, currents, etc., four hours; practice in preparing materials for work, hard soldering, instruction in laws and regulations regarding plumbing as affecting health, etc., and lessons in architecture, joinings, wood to be used as underlayers, five hours.

A graduate from such a school brings to the shop an enthusiasm and attention, a knowledge and skill, that aid his employer and himself. The division of labor to-day is so complete that apprentices in large shops have very seldom an opportunity to learn a trade thoroughly. They learn only a part—some special branch. Of the whole, they have hardly an idea. In small shops, masters seldom teach a lad much before the last year. The Aue school puts it into the boy's power to learn everything, and puts it out of the master's power to keep much from him. An Aue graduate can take up any branch of the plumber's trade and learn it in a short time. The purpose of the school is to bring out and build up all that is best in a boy's nature, to inspire a love for his work, to give him just such knowledge as will make him understand and do even the most difficult work. Not only the practical or utilitarian side of the trade is shown to him, but also its scientific and artistic phases, its relations to art and architecture, and its importance to sanitation. These schools are doing much for Germany, and I can think of nothing more needed in the United States than similar schools.

The school is pleasantly situated. Its surroundings are very agreeable and healthy. The courses are very cheap, the whole costing very little compared with prices that prevail with us. It gets its support from the State, from the city, and from plumbers' unions. A fact worth knowing about Germany's industrial, industrial-art, and technical schools is that, if the Government ceases to give them its support, the branches of business to which they are useful will support them. This is the invariable answer I get when I ask what would result in the event of Government support being withdrawn.

7. WANDERING TEACHERS (WANDERLEHRER).

Goethe gave great impulses to his people. His influence is felt to-day in every part of the Empire. German language, literature, and learning are more Goethe than France ever was Napoleon. Since he wrote "Wilhelm Meister's Lehrjahre" and "Wilhelm Meister's Wanderjahre" their influence has gone from the center to remotest parts. Wherever German is read, their influence is felt. The "Wanderlehrer," or "wandering teacher," of to-day combines both of Goethe's ideas. He learns by travel and teaches wherever he goes.

The system is very simple and is described when named. These teachers, supported by the State and by agricultural unions, go from place to place,

winter and summer, and lecture on agricultural and horticultural subjects. Their purpose is to lift up and ennoble agricultural life; to afford the farmer the knowledge gleaned by science since he left school; to impart to him the best methods of selecting soils, fertilizers, cattle, trees, etc.; to teach him how to use his lands to best advantage, to graft, to breed in; to get the best, quickest, and most profitable results, etc. In no domain has investigation and invention accomplished more in the last ten years than in agriculture and horticulture.

The teachers are skilled scientists; practical workers, not theorists. They must be qualified before appointment is possible. Each has his district. Over this he "wanders" week after week, lecturing on Sundays, as well as other days, before agricultural clubs or unions, showing how animals should be cared for; how cows can be selected by escutcheon or other signs; how trees are grafted; what trunks are best for pears, apples, peaches, etc.; how machines may be made to save time, labor, and money; how unions may combine for their purchase and use in common; in a word, he furnishes farmers ways and means to make the most of their time, money, and strength.

The teacher should make himself perfectly familiar with the wants and needs of his district. Armed with this knowledge, his usefulness is certain and unlimited. When he speaks, his voice is that of one in authority; it is heeded. He can point out evils, suggest remedies, and offer new ideas. It is always better when the teacher is left many years—the longer the better—in one district. Familiar with soil and climate, he can advise in the selection of seed and fertilizers; he can make experiments himself, find out what is best, and thus be able to say how seed, fertilizers, and soil should be treated. There is no limit to his usefulness.

I can think of nothing more agreeable, nothing better for farmers, in American communities than the visit of just such teachers—say once a week. The teacher with whom I talked most, and to whom I owe a great deal for various kinds of information—Dr. Engler—makes his lectures vivid and graphic, interesting as well as instructive. He is a learned and much-traveled man. These teachers are often sent to France, Russia, and other countries to study, compare, and bring home anything and everything worth knowing and having. They are walking encyclopedias of knowledge, especially of knowledge pertaining to the woods, hills, farms, and fields. If the world's best benefactors are men who make two blades of grass grow where formerly only one grew, these men are of the number. No farmer toils uselessly who heeds them.

The following list of lectures will give a good idea of the practical value of the "wandering" teacher's work:

(1) *Concerning the history of agriculture.*—The most important German agricultural reformers; principal periods in the history of German agriculture; Saxony's royal family's efforts in aid of agriculture; progress in agriculture; how to educate the sons of farmers.

(2) *Practical farm work.*—Soils and their physical peculiarities; the different soils (physical and chemical peculiarities), how to care for and

treat for planting vegetables, etc.; worth of water, irrigation and drainage (ancient and modern); cultivation and care of light soils, in dry years especially; how it is possible to determine a soil's need of nourishing stuffs, and how best to supply them.

(3) *Plant life.*—Small and large enemies of plants in the kingdom of animals and plants; principal factors in the production of plants; nourishment and care of fine plants; Germany's grain culture and the possibility of increasing the yield of grain fields; cultivation of rye and barley, or how to get a good yield of rye and a fine barley for brewing; choice of seeds and their care; seed grain, production, treatment, harvesting, obtaining of large yields, and how to keep; how to raise fine potatoes, get good yields, and fight diseases and bugs; plants of Saxony; scarcity of fodder, how to prevent it, how to fight it, and what to do when it wins; fertilizers—the utility of certain plants as foundation on light and heavy soil, treatment; nitrogen, its importance for fertilizers; phosphorus and its most profitable fertilizing form; lime and alkali salts for or as fertilizers; progress in theory and practice in the matter of fertilizers; which fertilizers are best for spring and which for summer, etc.; natural and artificial fertilizers, with best way to use; care of barn and stable manures.

(4) *Breeding animals.*—Darwinism as applied to breeding animals; the cow and its care, breeding, etc.; fodders, how to mix and what to mix; breeding of poultry (regarded as a gold mine for farmers, especially hens and geese); in the cattle yard and barn, arrangement of both, treatment of cattle and the use of fodder, straw, etc.; importance of salt for cattle.

(5) *General subjects.*—Labor on the farms, its condition, and how the idleness in great cities might be reduced; present and future of German agriculture; old and new information about hail, its origin, treatment of fields bent down by hail, and insurance against hail; the possibility of paralyzing foreign competition and making agriculture pay better; the weather, how to read its signs and provide against its evils, and how to take advantage of its blessings; vegetables and flowers, care and importance; political economy and its importance to farmers; German and American farming compared; agriculture among Germany's competitors, especially in America, India, Russia, etc.; importance of ponds for farmers, their care and stocking with fish (a very profitable industry here); education of the farming population with a view to solving the labor question; the stars, planets, etc., and their influence on the animal and vegetable kingdom; questions at issue about animals and man.

(6) *For farmers' wives and daughters.*—Care of the kitchen, garden, plants, flowers, etc.; importance of woman's work on the farm; importance of water in kitchen, stable, and barn; importance of salt for kitchen, barn, stable, and field; education of girls for house, dairy, farm, etc.; how to get and keep good servants on a farm.

There is hardly anything to add; the lectures cover the entire field. From personal observation, I can testify to their good effects. Farms with

ponds are stocked with carp and other fish, from which good returns are realized. Other farms include the breeding of hens (for chickens and eggs) and fare well. Those near woods or flowering fields have bees. Dogs, too, are trained here to do the work of horses.

8. AGRICULTURAL SCHOOLS.

The school at Chemnitz.

The agricultural school at Chemnitz was opened in 1877 by the agricultural union of the district. The object of the school is to give the sons of farmers or others intending to follow farming just such an education and knowledge as will best fit them to be good farmers and workmen. If Bismarck's famous aphorism, "Who has the schools, has the future," has any force anywhere on earth, it is on the farms; for the future of agriculture lies in the schools.

The course is complete in one year of two terms. During the winter term, the school is overcrowded; but during the summer term, a great many more might, with profit to themselves, be entered.

The studies in this school comprise the following branches: German, writing, arithmetic, geometry and field surveying, drawing, geology and geography; influence of mountains, trees, etc., on climate; history, natural history, zoölogy, etc.; natural philosophy; physics, winds, weather, meteorology; fertilizers, fodder, field, orchard, plant knowledge, science of agriculture, bookkeeping; constitutions, laws, and regulations relating to farming of the Empire and of the Kingdom of Saxony; horticulture, grafting, planting, transplanting, cultivation of young trees, turning, and singing.

Each of the two classes has thirty-six hours a week (obligatory). In summer the hours are from 7 to 11 or 12 a. m. and from 2 to 4 p. m.; in winter, from 8 to 12 a. m. and 2 to 4 or 5 p. m.

The corps of teachers consists of a director, who must be a professor of the science of agriculture; an assistant director, who must also be a professor of agriculture; a professor or teacher of natural history, and four (or as many as are necessary) assistant teachers. The four here are the district veterinary surgeon, two district school-teachers, and a gardener.

The schools, as a rule, have a rich supply of well-selected and approved instruments of all kinds, good libraries, maps, etc., a collection of necessary physical apparatus for use in teaching mechanics, meteorology, optics, acoustics, electricity, and magnetism; a collection of chemical apparatus and numerous chemicals, especially those relating to agriculture; a collection of models, etc., necessary to teach natural history, especially skeletons, stuffed animals, and birds, reptiles, etc., in alcohol; fishes, insects, etc.; a collection of models, etc., for teaching flora and horticulture; models and drawings of blossoms, fruits, etc., and various kinds of woods; a collection to aid in teaching mineralogy and the science of soils; a collection to aid in teaching all that is known about natural and artificial fertilizers, fodders, seeds, cultivation of potatoes; models of horses' hoofs, legs, etc., with a view

to teach how horses should be shod. There are models of all kinds of ancient and modern agricultural, floral, and horticultural machines and implements; models of meadow trees; models of many animals, especially useful and destructive ones; models of milking cans, dairy arrangements, etc.; models of horse and ox shoes, etc.; surveying and field and farm measuring instruments; charts, maps, etc., colored and plain, of all kinds.

The library is free to scholars and parents. Through presents of books, apparatus, etc., the library and collections grow larger year by year.

Scholars are entered in April and October. The conditions of entrance are a common-school education at least. Persons over twenty can come in as guests or take a partial course. Examinations are held at the close of each term, both for those going out and those coming. The entrance fee is $1.19; for the half-year term $9.52; for books, drawing and writing materials, etc., per year, two terms, $5.95; board and lodging, $7.14 to $9.52 per month; pocket money per year, $19.04; total, $119 per annum. Such a sum, insignificant as it seems, is the best investment a farmer can make for his son. One who keeps his boy drudging on the farm, never sending him to school, gets from that $119, in interest at 4 per cent, $4.76 a year; but the school-bred farmer will win in the year ten times, and, in the long run, one hundred times this amount. He knows what to do with his soil, his woods, fens, swamps, fields, cattle, horses, etc. Besides, he gets an immense amount of mental pleasure watching nature's works and laws in their wonderful operation.

There are numerous scholarships in these schools open to deserving boys. Teachers and professors exercise a wholesome control over the boys, not only during school hours, but on the streets and playgrounds.

The agricultural unions, usually the patrons and founders of such schools, are not unlike our agricultural societies. They inaugurate fairs, hold meetings, and do all they can to encourage progress in farming. Weekly meetings are held. At each meeting, one of the scholars has to deliver an address or read an essay on some agricultural subject. The other scholars take notes. The address or essay ended, general discussion on the subject ensues, and it is simply marvelous how much information is crowded into a few hours' talk. I have attended such meetings and learned more from the discussion than from the essay or lecture, even when, as sometimes happened, it was prepared by a learned professor. I learned how much is lodged in the expression "no one man knows it all."

Besides the foregoing, there are excursions. These are made to famous or well-known farms. When interesting and instructive operations are to be performed, the whole school attends. They keep the scholars in close contact with practical work. Minerals, plants, trees, etc., as well as animals, are studied. The railroad tickets are sold to scholars at half price.

If there was one feature more than another that impressed me in examining these schools, it was their eminently practical work. The Germans are among the last people to put out money for which there is no return. That

these schools pay is beyond all doubt; the increased number of scholars, interest in their work, etc., prove it.

Besides the agricultural courses proper, there are special courses for gardeners' apprentices. These take up gardening of all kinds and nursery work. In March and February of each year, lectures covering the most recent results in matters relating to agriculture are given.

The schools are supported by the Kingdom, by tuition fees, by contributions from agricultural clubs or unions, and by the cities. Chemnitz pays about one-third of the year's expenses—although it is essentially a manufacturing city—the wonder being that it has an agricultural school. These schools are in no sense agricultural colleges. They are part of the practical public-school system. They are simply places to work for useful knowledge. They are so close to the people, and do their work so quietly and well, that they are now indispensable.

The school at Wurzen.

The agricultural school at Wurzen, in Saxony, is similar to the one at Chemnitz. Its course is two years. Its success is assured; year after year, the number of students increases. The work done is similar to that done in Chemnitz, except that, in gardening, the boys have each a small plot of land to care for and cultivate. This is done under the eyes of the teachers and results in the very best skill attainable.

Situated some distance from a city, its pupils have excellent chances to visit dairies, farms, and factories connected with the utilization of farm products, such as sugar factories, distilleries, breweries, etc. Last year, Wurzen agricultural classes visited nineteen different farms, several dairies, a gas house, a machine shop, a wool-washing factory, a book-printing house, a city brewery, several distilleries, a stoneware factory, and a steam dairy. Once, they went to Leipsic and examined the breeding stables, dairy, test fields, collections of wool, etc., in the agricultural department of the great university. In the afternoon, they saw the city and the battle panoramas. The following account of an excursion into the Harz Mountains was written by one of the scholars:

The night before the morning set for the excursion, everything, to the last buckle, was in order. The boys went early to bed, for the bell was to call them between 4 and 5 next morning. At sunrise, all were on hand. Breakfast was eaten amid unusual animation. In the gardens and fields, birds were singing. The perfume of the fields and flowers was in our faces as we walked to the station. At 6 o'clock the train steamed out over Leipsic to Halle, on the Saale. Upon our arrival, we inspected the new station and its electrical arrangements. Thence we walked to the agricultural institute of the famous university. We saw the variety gardens under the directorship of university professors. We had pointed out to us all the rare and regular forms, as well as weeds, useful, useless, and dangerous. Thence we went to the henneries and breeding places for useful animals, and had pointed out to us many curious results of in and cross breeding. We learned also how tame or domestic animals may successfully be crossed and propagated with wild ones. Delighted with what we had seen, we left the university and tramped through the ancient city's streets, visiting many a quaint place of historic interest. From Halle we went to Stassfurt, visited the salt works, went 1,300 feet

down into the earth to see the miners dig out the rock salt. It was like a scene in fairyland; the rich colors were like those of a thousand rainbows. After refreshments, solid and liquid, we mounted, took off our miners' rigs, and went to the chemical works at Leopoldshall. At 11 p. m. we steamed into Harzburg; soldier like, we bivouacked in a bowling alley. It was cheap, it was novel, we were tired, and so we enjoyed it. With dawn's first gray streaks on the horizon, we were up and astir. We wandered in groups into the fields and hills till the horn to assemble for breakfast sounded. Breakfast finished, we went into the hills, those old historic Harz hills. Of course, we had a guide. Every interesting place and object was pointed out—Bismarck's stone, with the Iron Man's famous saying, "We will never go to Canossa." We noticed the difference in vegetation as we ascended. The stunted trees and thin grass told us we were getting into high altitudes. At last a shout rang all along the line, "the Brocken! the Brocken!" It took all the teachers' authority to keep the classes in line, so great was the desire, the Brocken in view, to break and run for it. When told that it was still far away, that the seemingly short distance was deceptive, we yielded and walked on till a few hours later the Brocken was reached. I will not attempt the impossible—a description of all we felt and saw. We visited, as far as time and the teachers' permission would allow, all the famous places.

On the morning of the third day of this most delightful trip, we started for the hothouses and art gardens of the Dibbe Brothers. These gardens produce seeds which are sent to all parts of the world, as well as all kinds of flowers. An army of workmen, artists, and officers are employed. An idea of its work may be obtained when one knows that 200 oxen and 250 horses are constantly at work in the gardens. This was the last place visited. At midnight, we ran into Wurzen, back to our own comfortable beds in our own school. We had enough to talk of for weeks and to think of for years.

The pleasure and profit got out of such excursions certainly commend them. They are as much a part of the school system here as are the regular recitations. Breaking, as they do, the more or less dull monotony of the class room, they are eagerly looked forward to by both students and teachers.

9. MITTWEIDA TECHNICUM.

Mittweida is a city of 12,000 inhabitants, situated 9 or 10 miles from Chemnitz, in the Kingdom of Saxony. It lies on the line of railroads running from Berlin, through Riesa, to Chemnitz and the south. Besides being a very busy industrial city, with cotton and woolen mills, machine shops, foundries, etc., it has one of the world's best and most famous technical schools.

The school is announced in its programme as the "Mittweida Technicum," a name best translated by our "school of technology."

The school was founded in 1867, and has grown from very modest proportions to an attendance last winter of 1,188 students. These represent four continents and forty-six states. Europe sent 1,166, viz: Saxony, 132; Prussia, 533; Bavaria, 72; Würtemberg, 12; Baden, 32; Mecklenburg, 15; Hessen, 12; Brunswick, 6; Oldenburg, 6; Saxe-Weimar, 11; Saxe-Meiningen, 4; Saxe-Coburg-Gotha, 5; Saxe-Altenburg, 5; Schwarzburg, 2; Anhalt, 14; Reuss, 5; Hamburg, 13; Bremen, 9; Lübeck, 3; Alsace-Lorraine, 13; Austria, 78; Hungary, 17; Holland, 23; Switzerland, 11; Luxemburg, 4; Great Britain, 2; Denmark, 10; Sweden, 1; Norway, 6; Russia, 87; Turkey, 3; Roumania, 11; Servia, 1; Bulgaria, 3; Italy, 1;

France, 1; Belgium, 2; Spain, 1. From Asia: India, 1; Java, 5. From Africa: Orange Free State, 1. From America: United States, 6; Brazil, 4; Argentine Republic, 1; Guatemala, 2; Chile, 20.

Twelve of the students were married men, who came to fit themselves further in the branches to which their lives had been devoted.

The purpose of the school is to teach the technology of machinery; to fit young men for practical work in engineering and mechanics of all kinds, from the filing of a piece of iron to the calculation of scales, cranes, and bridges.

The classes may be divided as follows:

(1) Engineering and mechanical school (also for electro-technical study and work); for engineers, constructors of machinery, workers in electricity, and mill-builders; manufacturers of machinery, persons whose position in life renders necessary the largest, widest, and deepest knowledge of the technology of machine-building, electro-technic and mill-building, those who want to know how to judge the engineers and technicians whom they employ; future manufacturers of various kinds of articles, persons who must buy machinery and have it set up and run in their mills, viz, builders of engines, turbines, tools, and machines for making tools, electrical apparatus and machines, signal and switching apparatus, wagons, carriages, drays, elevators, ventilators, and, in fact, every possible kind of machine, tool, or apparatus; manufacturers of paper, spinners, weavers, etc.; future agents, directors, superintendents, and overseers; patent lawyers and the keepers of technical bureaus; traveling agents who intend to solicit trade for factories of the kinds enumerated.

(2) A school for master workmen (overseers), engine-setters, erecters, etc.; for those contemplating a career in connection with electricity; special training in machine-building, mechanics, and mill-building.

A course at such a school is especially good for industrial leaders of all kinds who desire a general and special mechanical and technical training in order that they may know how to use knowledge and be able to adopt new knowledge and methods.

A scientific and valuable training in electrical technology is only possible to persons who have made a good course in mathematics, mechanics, chemistry, physics, and, especially, machine-building. Persons, therefore, contemplating a course in electrical technology are put into the engineering and mechanical school during the third and second last half years and into the master-workman's school during the last half year.

The present is an era of electricity. With coal rapidly being consumed, with science opening chamber after chamber in the vast realm of the unknown, revealing nature's secrets, electricity is becoming more and more the agent of man. To meet the rapidly increasing demand for men trained in the technology of electricity, the "Practicum," a magnificent new building adjoining the old "Technicum," was erected. Its name indicates its purpose. It is a workshop for practice in everything connected with electricity.

There are fifteen rooms, each fitted up in such a way as to get the very best results with the smallest loss of labor and time. Nothing in theory that can be reduced to illustration is ever allowed to pass without illustration. The professors favor work in shops, factories, etc., when or where possible before coming to the "Technicum" or "Practicum." I find that this feeling prevails all over the Empire.

The system of instruction is in the highest degree practical. When I went to the school, the young men to whom I had letters begrudged an hour from the shops and machines. Lectures are given, questions are asked, etc., but the boy is not left to languidly loaf away his time. He has work assigned him, beginning with what is elementary, such as hammering, filing, etc., and ending with what is most complicated in calculating the construction of cranes, levers, bridges, etc. Teachers often take scholars one by one, devoting special attention to each. Work is often repeated in certain branches until quite a degree of skill, as well as knowledge, is gained.

Work is done in construction, drawing of machines, plans for machines, drawing of buildings, making of plans for buildings, etc. The students are encouraged and urged to work these out entirely unaided. The professors confine themselves as far as possible to a few hints at the beginning of a piece of work and an occasional glance or leading question afterwards. The methods employed in most mills, especially those having the highest reputation, are used here in every room in both buildings. In a word, theory and practice go hand in hand, giving to the students the best obtainable up to date.

There are forty professors, teachers, and officers connected with the school at present.

A fault found with this school is one to which private schools are more or less liable. After building up a reputation on the achievements of some very clever men in the past, it thinks to go on indefinitely and profitably from the impulses thus given. Its corps of teachers is complained of as being too young, lacking in the large experience and general knowledge that can come only with years. Young men, graduates of universities, are too often taken in, and, what is worse, these, after four or five years, when they have in some sense fitted themselves to teach, pack up their trunks and go to other schools, attracted by higher wages. This is very much regretted. A fear is felt that the future is growing, from this cause, more and more uncertain. To retain the remarkable reputation that attracts in one year 87 scholars from Russia, 11 from Roumania, 6 from the United States, and 4 from Brazil, it will be necessary to build, as the founders did, on the very best materials.

The aids to instruction are a library of 4,000 volumes, drawings of all kinds relating to technology; a reading room in which are found most of the world's leading technical and industrial journals, besides one hundred leading German, Austrian, Swiss, Dutch, English, and Russian papers and magazines, and the publications of the imperial patent bureau; a technolog-

ical collection, models for machine building, models and materials used in building, models for solid and descriptive geometry, a collection of wood, plaster of Paris, and wire models for free-hand drawing; apparatus and instruments for chemistry, physics, electricity, surveying, and leveling; apparatus and instruments for dynamometric and hydrometric experiments; excursions to factories in Mittweida, Chemnitz, and other cities under the direction of professors and teachers.

The subjects of study are lower and higher mathematics, algebra, algebraic analysis, higher equations, differential and integral calculus, integration of differential equations, plane and solid geometry, trigonometry, projection of shadows, perspective, natural history, physics, chemistry, electricity, elementary mechanics, technical mechanics, analytical mechanics, strength and resistance of materials, graphic statics, hydraulics, theory of mechanical heat, kinematics, machine-building, elements of machine-building, lifting and transport machines, steam engines, valve diagram, valve gearing, steering machines, boilers for steam engines, water wheels, turbines, pumps, locomotive-building, gas and other small motors, tools and their construction, heating and ventilation, theory of machine-making; theory of fly wheels, governors, and regulators, and practice in drawing plans of all the foregoing; electricity, embracing physics, etc.; mill-building, technology as applied to metals, molding of iron, etc.; science of building and engineering—estimates on buildings, drawing of plans, surveying, and leveling; free-hand, line, and geometrical drawing; projections, shadows, perspective, sketching, machine-drawing, and drawing from nature. The practical work includes indicator diagrams, dynamometric experiments on working machines, hydrometric experiments, electro-technical measurements, surveying, and leveling. Single and double entry business bookkeeping, languages—French, German, and English especially—and general branches are also taught. Students at the "Technicum" are insured against accident at the expense of the institution.

There is a preparatory course, free to those who want to review what has already been gone over and to those who want to prepare to enter the regular classes.

The course in the machine-engineers' school covers two and one-half or three years, the former for plan or course "I," the latter for course "II." The workmaster course covers one and one-half years. Requirements for admission, as in all private schools, are, as above indicated, made comparatively easy. No one applies who is not, as a rule, admitted, and very few apply who are not qualified. The programme, under the requirements for admission, begins with necessary preparatory knowledge, and then, without stating just what knowledge is necessary, goes on to say that young men who wish to become mechanical engineers or electricians choose course "I" if they know algebra and plane geometry; if, however, they have only a common-school education, or come out of the lower classes of a grammar or similar school, they choose course "II." Both courses lead to the same

end. This is as delightfully indefinite as any lazy or indifferent scholar could desire. Luckily, it leads to no bad results, for the Mittweida Technicum—I can speak from personal inspection and observation—is a veritable beehive of busy boys.

For future master workmen, course "III" is designed. Persons may enter this who have gone through the common school and have had, besides, at least two years' practical work in shops.

I desire to again call attention to the fact that all educators here are agreed that the very best thing to do before taking a course in a technical school is to work one, two, or three years in a shop or factory. Boys who have done this learn more easily and make much better use of their time. The directors discourage work outside (*i. e.*, to pay one's way through college) during a course, for the hours are so arranged and the discipline is so strict that no time is left, except for sleep, eating, and exercise.

The directors prefer not to take boys under sixteen.

The tuition fees are $34 to $36.93 a year, payable semiannually.

Board and lodging can be obtained at very reasonable rates in teachers' families and in regular boarding houses or restaurants.

Examinations, vacations, regulations, etc., are about what they are in other schools.

The "Technicum" has demonstrated, not only its right, but its power, to exist. It has a long list of great names on its rolls of honor. When Prussia sends it 533 scholars in 1893–'94, it is proof, were any wanting, of its worth. It has come to stay. It has helped in the material greatness that has marked the Empire's growth since 1866.

10. THE CLOCK SCHOOL OF FURTWANGEN.

Furtwangen, a thrifty village of the German Black Forest country, is famous for its school and its clocks. From "time immemorial," the Black Forest has been famous for some kind of house industry. The isolated lives of its inhabitants, before coach roads and steam cars, led to hand work during the long nights and dreary days of winter. After Galileo gave the world his time-measuring pendulum, clock-making offered to hand workers as many hopes as almost any other industry. Black Forest clocks claimed and held sure sales at high prices. Down to the late sixties and early seventies, nothing interfered with their success. About that time, machinery began to be employed in the manufacture of clocks. Against Waltham, Furtwangen and the Black Forest were powerless, and trade fell quickly away. The Duke of Baden began to look about for something to save the drooping industry. He found what was required in the wood carvings of the Austrian Tyrol and in a school system calculated to lift clock-making from a trade to a science. In 1877, the school was opened, wood-carving introduced, and clock-making in the quaint, queer, out-of-the-way places in the Black Forest took a new lease of life.

The purpose of the school is to advance the interests of the Black Forest clock industry and to give technical education in the mechanical branches

associated with the making of clocks, watches, and electrical instruments. Its object, further, is to train mechanics, masters, and manufacturers. It aids manufacturers in the Black Forest industries by giving advice, assistance, and newly acquired knowledge, especially in the matter of new machines, patterns, movements, etc.

The courses cover three years: (1) preparatory, (2) clock-making (*Fachkurs*), and (3) advanced or supplementary course. The courses comprise theory and practice; the latter in the workshops in different branches of clock and watch making, the higher or finer mechanics, and electricity. In theoretical work, the hours in summer are from 7 to 12 a. m.; in winter, from 8 to 12.

The preparatory course embraces the following studies and hours per week:

Studies.	Hours.	Studies.	Hours.
Experimental physics	1	Production, direction, and manipulation of electrical currents	2
Arithmetic	2	Constructive practices in the mechanical and technical treatment of electricity:	
Geometry, stereometry, and plane trigonometry	2	In summer	8
Practical arithmetic and geometry	1	In winter	6
Geometrical drawing (summer)	6	Practice in calculating clock works for special objects and the construction of special machines	2
Instruction in projection (winter)	4	Practice in construction in watch and clock making:	
Free-hand drawing	2	In summer	8
Business essays and correspondence	2	In winter	6
Mechanics of solid bodies, with practice	2	Measuring, changing, and manipulation of electrical currents	2
Technology and use of tools in clock-making and mechanics, with sketching	2	Construction in the realm of electricity:	
Bookkeeping, banking, etc	2	In summer	8
Free-hand drawing, with special reference to the outer forms of clocks	2	In winter	6
Clock constructing	4		
Constructive practices in clock-making:			
In summer	8		
In winter	6		

Practical instruction in work with tools, machines, etc., under the direction of trained teachers and practical mechanics, is given in the morning, during such time as the classes or members of classes are not reciting or listening to theoretic instruction, and in the afternoon. The time occupied in instruction in the courses is as follows:

The preparatory course for clock-makers, including the preparation of materials by filing, turning, boring, fixing, and making tools, production of parts of watches and clocks, forty-eight hours a week in summer and forty-four hours in winter; for fine and electro-mechanics, filing, turning, forming, running machines, fixing and making of tools and small apparatus used in the finer mechanics, and for treating electricity, forty-seven hours in summer and forty-three hours in winter; in the clock and watch making course and fine mechanics for clock and watch makers, in the production, putting together, separating, and adjusting works of all kinds, forty-one hours in summer and thirty-seven hours in winter; for fine mechanics and electro-mechanics, in the preparation and making of electric clocks, tele-

phones, microphones, compasses, etc., after drawings, forty-three hours in summer and thirty-nine hours in winter.

In the advanced course for watch and clock makers, in the making of clocks and watches for special purposes, chronometers, chronographers, marine watches, clocks, etc., fifty-three hours per week in summer and forty-nine hours in winter; for fine and electro mechanics in the making and finishing of measuring instruments for use in electrical machinery, etc.—lamps, dynamos, etc.—after drawings, fifty-three hours in summer and forty-nine hours in winter.

The means for instruction include a large collection of all kinds of tools, instruments, drawings, models, etc., and carefully constructed and equipped schoolrooms. Besides these, factories, electric plants, etc., are often visited and operated by the scholars under the direction of their teachers or mechanics of the places visited. There is also a library, in which most of the books relating to clock and watch making and the technique and mechanics of clock and watch making and electricity are to be found. There are illustrations, drawings, implements, tools, etc.; machines for tool-making, tool-repairing, etc.; a reading room and a room for drawing, which are open to the scholars from 7:30 a. m. to 9:30 p. m., and all day on Sundays and holidays.

For the preparatory class, graduation from the *Volkschule* (equal to our grammar school) or proof of equivalent knowledge is necessary.

For the *Fachkurs*, the pupils must be at least 15 years old and have graduated from the preparatory course or possess as much knowledge and practice as is given therein.

For the advanced course, pupils must be 16 years old and must possess as much knowledge, theoretical and practical, as is given in the two preceding courses; strangers can enter, if qualified, as above indicated, but must yield tools and machines to the regular German students or those who take a full course. The full course is open to foreigners.

Tuition (*Schulgeld*) is $6 per year. Most of the material used, except such as breaks easily, is furnished free.

There are scholarships. Examinations and prizes take place, as with us, at the end of the year, although there are those who favor the total abolition of examinations at the end of terms or years, claiming that the teachers' records are a much better basis for awards of diplomas and certificates than examinations.

I desire to reproduce here what the director had to say to me of technical schools in our country. He had been to the Chicago Fair. I translate his language:

In the year 1881, I took charge of the school and changed its plan of studies, making it conform more closely to the industrial needs of the Black Forest clock manufacture. Little by little, we added the technology of electricity, and so the attendance kept on increasing till it reached its present size. The school could be made larger, as scholars are being turned away day after day; but we lack the means. I made a journey to Chicago, for the purposes of study, last year. I visited American schools and took occasion to note their work, plans, and

methods. When you get things systematized better, so that the separate classes fit better into each other, and when you learn the importance of laying greater weight on the worth in the teaching and studying of drawing, the schools of the United States will not be behind ours, for your schools can command much larger sums of money than do ours. Our total expenses—teaching, heating, lighting, etc.—are $7,000 per annum.

In conclusion, I beg to call attention to the importance attached to drawing of all kinds and in all kinds of schools by German educators. It was so impressed upon my mind, and its results are so palpable and manifold, that I can not but commend it to the consideration of such teachers as may read these lines. Not what the Furtwangen and the Black Forest are with them, but what they would be without them, is the problem that presses home on German educators and legislators. Not what we are without them, but what we would be with them, is the question for us to ask. Such schools would prove public blessings in Waltham, Waterbury, Elgin, etc.

II. HIGH SCHOOL FOR WEAVING AT CHEMNITZ.

These are times of terrible competition. "Concurrenz," as the Germans call it, is only another name for "fight for life." Success often depends on very small or seemingly insignificant factors. To-day, technical training is behind every successful business enterprise that calls for anything above the most ordinary capacity. In no branch is technical knowledge so necessary and useful as in the textile industry. It is not hard to spin coarse cottons, woolens, jutes, or linens, or to weave them; but to spin 60s, 80s, 100s, and up to 200s, to arrange and weave the multitude of complicated patterns turned off in Jacquard or fancy looms, calls for extraordinary skill.

Recognizing these facts, Germany, knowing that competition could be kept up with England and France only by good goods at fair prices, established schools in which to train her industrial captains.

Yesterday I went through the High School for Weaving in Chemnitz. It had its origin in 1857. It was designed to make Saxony independent of imported "captains" or experts. It has been splendidly supported by the State Government in the persons of members of the Royal Interior Department and by the city of Chemnitz.

The school is rich in new patterns, drawings, yarn collections, and books dealing with spinning, weaving, and finishing. The books are excellent aids.

There is a large recitation room, simply but comfortably fitted up. In this, lectures are listened to and questions asked and answered by teacher and students. Beyond, are large rooms or halls on three floors filled with every kind of loom on earth, from the simplest hand loom to the most recent and complicated of the famous Jacquards. From the recitation or lecture room, the scholars are led into the "shops" and put at the looms. Nor are they left alone here. Trained professors, men who might leave the school and run any weaving establishment in the Kingdom, stand beside the boys, pull the lathe, thread the shuttle, and arrange and explain the patterns so minutely, skillfully, and interestingly that only eager listeners surround them.

Most of the students are sons of manufacturers, superintendents, overseers, mechanics, and weavers.

Course A (first half year).—This course includes:

(1) Lectures on fibers (cotton, flax, hemp, jute, China grass, wool, silk, etc.), especially those used in spinning, their peculiarities, qualities, etc.; the processes of spinning, reeling, and numbering; the peculiarities and manner of judging yarns.

(2) Lectures on the preparatory work for weaving (boiling, starching, sizing, spooling of yarn, cutting, setting the warps, drawing the threads through the reels and harnesses); looms, their origin, kinds, etc.; the different kinds of heddles and reeds; stretching the warps; how to arrange parts of looms; how to use the tools, with the explanation of kinds; how to detect faults and causes of thin places, breaks, etc. Anyone who has suffered from a tyrannical and ignorant "fixer" will see the good of such instruction. It is no rare thing in New England to find mule spinners and weavers who know more about their mules and looms than the "fixers" employed and paid for looking after them. Knowledge gained in these schools gives the "fixers" control over all kinds of atmospheric changes. The trained "fixer" finds the "loose screw" as soon as the weaver or spinner tells him how the loom or mule acts. There is such a thing as scientific mule and loom fixing, and the sooner it is introduced into our mills the better for bosses, help, and owners. There are lectures on how to produce good cloth.

(3) Analysis of samples, beginning with the simplest and ascending to the most complicated patterns.

(4) Instruction in producing combinations, designing, changing, etc. Only one familiar with weaving will see the value of this instruction. In a year, the young man learns, and learns well, what it takes years to acquire in a shop, and, best of all, he knows the underlying principles.

(5) Practical work on the Jacquards. It was intensely interesting to watch the students working in this department. It was just the same kind of work as one would see in a shop, only the students showed an eager interest in watching every move of the beam, every change of the pattern, and in listening to every comment of their instructors.

(6) Lectures on staple stuffs, on modes of finishing, their effects on quality, endurance, color, etc., and on finishing machines. Cleaning, scouring, washing, singeing, rolling, teasing, etc., are taken up in turn and explained interestingly and minutely.

(7) Lectures on machines, their parts, how they wear and tear, when parts work injury when worn, etc.; machines for yielding and transmitting power; the general principles of mechanics with special application to looms; motors, kinds, usefulness, cost of maintaining, etc.

(8) Instruction in lineal and free-hand drawing.

Course B (second half year).—Course B includes:

(1) Lectures on preparing machines in mechanical weaving; spooling, dressing, beaming, etc., of the warps; spinning of the filling, with explanation of the value of good forms in cops, etc.

(2) Lectures on mechanical looms; history, classification, etc.

(3) Practical work in mechanical weaving.

(4) Analysis of Jacquard weavings of all kinds, with special reference to designing, changing, etc., and to the various kinds of goods produced.

(5) Lectures on the setting up and starting of the different Jacquard looms, common and fancy looms.

(6) Practical work in weaving on Jacquards.

(7) Instruction in drawing, especially in arranging colored patterns and in making new designs.

The above is only a skeleton of the course. It will serve to show that there is nothing slow or impractical about the Germans, at least in spinning and weaving. If Germany is fast forcing her way to the front; if Crefeld, Aix la Chapelle, Gera, Plauen, and Glauchau are taking the trade from Paris, Lyons, Roubaix, and St. Etienne, once almost exclusively theirs, it is due very largely to special efforts, to which these weaving and spinning schools contribute no small share. Crefeld's famous school is like the Chemnitz school, only fiftyfold more elaborate and better equipped. The value of such schools to Fall River, Lowell, Lawrence, and the Merrimac, Blackstone, Pawtuxet, and Woonasquatucket valleys would be immeasurable. One has only to read the question columns of our manufacturing and industrial journals to see and appreciate the need and value of these schools. Give these to New England, and in a little time we will be independent of Europe for technically trained captains. I know of nothing that we need so much. Even if we were never to export a yard, such schools would be good to lighten labor and improve quantity and quality of production.

There are winter evening courses, just as good as the day courses, intended for persons employed in the mills during the day.

Firms here whose names are household words owe it, on their own testimony, to these technical, industrial, and industrial-art schools. Slowly, surely, Germany is succeeding. Twenty years have wrought great changes here. Her history since 1870–'71 reads like romance. The schoolmaster has been and is abroad. A spinner or weaver sometimes knows more than the "fixers." Sometimes, the spinner or weaver has come to us from England or Germany, and has had the advantage of more or less technical training. Then, again, a particular spinner may have a peculiar talent for mechanics, may see how a thing must be to work well, etc. Give us the schools, and nothing will be left to chance or guesswork. Mules and looms are as delicate and intricate as engines, and much more subject to climatic changes.

The terms of admission are very simple—good character and sufficient intelligence to "take hold." Germans pay about $65 and foreigners $107 per year. Diplomas are given to persons completing the courses and special prizes to scholars who distinguish themselves.

Up to the present time, foreigners have been taken in all over the Empire. It is in the air just now that the doors are henceforth to be closed to all but

Germans. Crefeld, I was informed, has closed her gates to strangers, or soon will.

I examined text books on spinning, weaving, etc. They are minute, scientific, exact, and interesting. From the plant or insect furnishing the fiber to the finished product with most fanciful and elaborate pattern, the student is carried along, everything being illustrated by excellent drawings.

12. WEAVING SCHOOL OF MÜLHEIM.

Since 1852, Mülheim, on the Rhine, in the midst of the Rhineland cloth-making country, has had one of the world's most famous schools for weaving. I have nowhere claimed that Germans are very inventive. I know that they ransack the schools and libraries of other nations; but I know, also, that down to 1870, with a patent law for each petty state, duchy, and province, invention had very little encouragement. To-day, it is different. Since the reorganization of the Empire, a great change has come over the face of all things in the nation. Nowhere is this change more noticeable than in the imperial patent office. My motive for including Mülheim's school here is to show that the whole Empire, not any one part, has these schools.

Nineteen hundred "captains" of weaving have gone out of this Mülheim school into all parts of Germany, France, England, Russia, Austria, Hungary, Bohemia, Italy, Switzerland, Sweden, Denmark, North America, Japan, etc. It is no longer necessary to wonder why it is that New England's boss weavers, dyers, bleachers, designers, etc., come from Europe, as many of them do to this day.

Like the Chemnitz school for weaving, the one at Mülheim trains boys and men to be directors, master workmen, designers, fixers, etc. It also gives young men who wish to travel as buyers or sellers such exact knowledge of wares as will make them experts.

The Mülheim school, like that at Chemnitz, but unlike many others, instructs as far as possible individually, reserving for the class room only such information as is best suited thereto. This gives to energy, extraordinary talents, and unusual efforts every opportunity to complete the course as soon as possible or to devote the whole time to any particular line. Students who know nothing whatever about weaving are urged to begin at the very bottom and work up. This is perhaps all that it is necessary to say, for in all other respects the course is like the one at Chemnitz.

I should add here that the Plauen, Gera, Glauchau, Crefeld, and Rhineland weavers will not hesitate to use a good pattern, no matter whence it comes. They are great imitators, analyzers, and combiners. They make every effort to please. When England refuses to try to get and give what traveling buyers ask for, Germany takes the order, does her best, and usually succeeds. Combining or keeping chemistry side by side with dyeing, the Germans have succeeded in giving the world not only fast blacks (Hermsdorfs) in cottons and woolens, but combinations and results in other colors hitherto unknown. People in other countries should be disabused of the idea that

Germany's schools date back hundreds of years. Her industrial, industrial-art, and technical schools are of recent date. They are Germany's recognition of the need of great and exact knowledge, skill, etc., if she is to go on in the great race begun by the use of coal, steam, and electricity. The first factors in helping her to attain her present greatness, after national unity, have been her schools; the first factors helping her to retain that greatness are those same schools; and first among these are such as I am trying to describe.

13. WOOLEN WEAVING SCHOOL AT SPREMBERG.

This school was organized and opened in 1869. Recognizing its usefulness, the Government took hold of it and enlarged and rearranged it. Its object is to give manufacturers and overseers technical knowledge, practical and theoretical, in weaving woolen cloths.

There are two courses—a day and an evening course. The latter adds Sundays to its course. The day course is especially designed for manufacturers and their sons and for persons intending to be overseers, and the evening and Sunday course is for such as desire a technical, scientific knowledge of cloths and weaving.

Prussians pay 200 marks a year, others 220 marks. The plan of studies and the hours per week are: Knowledge of materials (lectures, microscopic examinations, numbering, stretching, and twisting of yarns, artificial wools and substitutes, booking materials), one hour; science of manufacture (wool from the sheep's back, commercial names, cleaning, washing, sorting, dyeing, spinning, etc., through all stages to the finished cloth), one hour; use of tools, one hour; practical work, seven hours; points of intersection (*Bindung*), one hour; plans for points of intersection, seven hours; analysis of samples, eight hours; the mathematics of weaving, one hour; commercial knowledge, one hour; free-hand drawing, two hours; machine drawing, two hours; designing, two hours; chemical technology, two hours.

It is hardly necessary that I give here, under each head, all that is done; nothing is neglected. For example, under chemical technology, are lectures, dictations, practical work in the laboratory, qualitative analyses, technical-chemical analyses, analyses of water, with instructions on kinds, uses, etc.; analyses and grading of soaps, fats, oils, and the salts, acids, etc., used in wool manufacturing, and analyses of thickening materials necessary or used in the dyeing, pressing, or finishing rooms. Not only German knowledge, but American, French, and English books, are ransacked and made to contribute to these schools.

Besides the professors, the school has a large library of books on wools, woolens, weaving, etc., which is free to the students. Then there are samples of wools, yarns, and weavings, models for sketching and drawing, colored charts, etc.; all kinds of machines, from the most antique to the most modern; microscopes, wool weighers and measurers, twist-counters, etc.; looms and gas motors, and a chemical laboratory for washing, scouring, dyeing, etc.

It is such schools, with their splendid training, that aid German wool-sorters to seek out so many sorts from a pile of wool. And every spinner and weaver of wool knows the importance of the wool-sorting on every machine from comber and carder to the loom. Long before boys and girls get to the benches in the mills, they have learned to select the different sorts. What this means in a year's saving, only overseers or superintendents can say. It is not born in Germans, it is "ground" into them and pounded into them. The Rhineland, Westphalia, and Saxony send out cheaper woolens than the English woolens; by no means so good, but cheaper, and, what counts, salable. They sell even in England.

14. GERMAN SCHOOL UNIONS.

There are in Germany and Vienna and German-speaking Austria two German school unions for the perpetuation, propagation, and dissemination of the German language. The German union, with its principal office in Berlin, has 310 branch unions and 30,000 members. In 1893, its income was 94,290 marks. It expended 61,367 marks in Hungary, Bohemia, Silesia, and other countries to assist in keeping German-speaking people faithful to the mother tongue. Privy Councilor D. Bockh is president of the Berlin union, and has behind him some of the best men in the Empire, among them Prof. Wattenbach, Prof. von Curry, Dr. Frommel, and Prof. Dr. Zupitza. Austria's union, with principal seat at Vienna, has 100,000 members in 1,020 branch unions. In 1893, its income was 270,791 florins, and its expenses amounted to 239,254 florins. It supports 29 schools with 69 classes and 44 kindergartens with 50 divisions. Besides this, it subsidized or assisted 47 other schools and 40 kindergartens in 1893. It establishes libraries, reading rooms, etc., pays teachers, offers and pays for prizes, and, in a word, keeps up a constant propaganda for the German language.

15. CHEMNITZ KNITTING SCHOOL.

This school had its origin in a desire to create captains of industry capable of competing with England's, and to make Chemnitz independent of imported overseers. The effort has been a complete success. Not only are there no more English knitters imported, but they are no longer needed, the Chemnitz school furnishing all that are wanted.

The work of the school, unlike the one at Limbach and so many other technical schools in Germany, is entirely practical. The theory of knitting plays no part in the school's regular programme. It is the intention of the directors, however, to ask the State to support a teacher of theory. There are fifty-three scholars and two teachers. The latter are men who showed exceptional skill and ability in the factories, one of them having visited France and England to work in shops and study machines in those countries. The classes are so "cut up" that never more than ten are working at one time, *i. e.*, under obligatory hours. The boys begin with the

spooling or winding of the yarn and with all kinds of hand and treadle machines, from the oldest (similar to the one invented by Lee in England) to the most recent and complicated. Step by step, from the first machine, in historical succession, with analyses of eccentric and cam movements, the boys advance, guided at each step by professors who are perfectly familiar with what it is necessary to know. The machines make stockings, jackets (knit, like the so-called Cardigans), underclothes, and gloves. Next, the boys work on machines for making the following articles, advancing to higher work as they become more expert: Hoods, shawls, cloths, and stockings; gloves, bed and table cloths, or covers, portières, curtains, etc.; feet and legs of stockings, vests (knit), waists, wristers, children's and ladies' yarn jackets, sofa covers, etc.; English and French knitting machines, especially the so-called round frames for making stuff for stockings, underwear, jackets, bathing clothes, traveling rugs, cloths, etc.; page frames for making regular hosiery; sewing and chaining machines. The working hours are as follows: In summer—Monday, 8 to 10 a. m.; Tuesday, 6 to 8 a. m. and 7 to 9 p. m.; Wednesday, 8 to 10 p. m.; Thursday, 6 to 8 a. m. and 8 to 10 p. m.; in winter—Monday, 8 to 10 a. m.; Tuesday, 7 to 9 a. m. and 7 to 9 p. m.; Wednesday, 7 to 9 a. m. and 8 to 10 p. m.; Thursday, 7 to 9 a. m. and 8 to 10 p. m.; Friday 8 to 10 p. m. These hours are for men who work, the hours for the day scholars being from 8 to 12 a. m. and from 2 to 5 p. m.

Whatever of theory is imparted is taught by Prof. Wilkorn, of Limbach's knitting school, who comes once a week to lecture. The lectures are given in the technical high school, and are attended by boys from the knitting school. An effort is being made to get the State to give the school a professor of knitting, thus leaving Prof. Wilkorn free to devote all his efforts and energies to the Limbach school, of which he is the founder.

Besides the boys from the knitting mills, mechanics' apprentices from the Chemnitz and neighboring machine shops take the full course, studying the principles, so as to be better fitted for inventing and improving the machines.

The course is covered by one year's regular attendance. This is possible because of the way in which the teachers' time is utilized. Nothing is left to lectures. The professors go from frame to frame. Each graduate is familiar with every known machine, its working principles, etc., before he receives his diploma. This enables him to enter any mill as overseer or fixer. The president of the board of directors, with whom I went through the school, has been in every knitting mill in the United States but one—a knitting mill at Providence, R. I. The director or head professor has studied in various parts of the world all kinds of knitting machines to fit himself for his post, which, by the way, he works in for pretty small wages with a certain sense of patriotic duty, for he gets only $7 a week, while his assistant gets $5.75.

The president assured me that the school is now indispensable. No man can advance in the factory unless he learns here. The president said further:

> Let the State take away every dollar it gives and the city, too—for both aid us—and the manufacturers will make up the difference. It is here to stay, to go on building up bigger and better captains of industry. No men know its va ue so well as the present generation of knitters, for they, mindful of the difficulties under which they learned before 1870, are determined to have only the very best schools and methods.

I may say that the contributions of the State and city are a mere bagatelle compared with the sums sent in by manufacturers. Then, too, the latter make very practical contributions in the form of machines, old and new. At every step, from the machines worked by hand and foot to the intricate, complicated combinations of gears, wheels, needles, eccentrics, cams, etc., I was struck with the great interest of teachers and students in their work, and what seemed to me the very practical nature of it all.

Time is money, and nowhere is it more valuable than in mills. These men, once inside a knitting mill and set over machines, knowing, as they do, in detail, the underlying principle of every movement of every machine, are able to correct errors, replace parts, and discover discrepancies the moment their eyes rest on a "diseased" machine. There is no longer any groping, turning, twisting, screwing up, unscrewing, etc., as in the old times; the fixer knows his business and finds out what is wanted before hammer, monkey wrench, or tool touches a part.

In one year, Chemnitz sends to the United States knit goods to the value of $12,000,000—more than one-half of her entire product. To-day, in spite of Nottingham, she is selling in England; she is flooding Russia and South America. There is nothing in knitting that the deft fingers of the workers of the United States may not do. Little knitting mills, such as adorn the hills and valleys of Saxony, with just such schools to aid them, would prove a blessing in the mountain districts of the United States. The costly character of the goods would minimize mountain freight rates.

16. TOOL AND MACHINE MAKING SCHOOLS.

One of the leading tool manufacturers here—Mr. Reinnecker—worked thirty-five years ago in a shop 8 by 10 feet, assisted by one boy, compelled, as was the custom near and in Chemnitz in those times, to take his goods from shop to shop to sell. To-day he has one of the finest plants on earth. He sells to England, Russia, and South America. He employs from 250 to 300 men, and runs all the year round.

The architectural arrangement of his shop is the most practical and perfect of its kind I have ever seen. The offices and drafting rooms run all along the north side, are elegantly lighted, and are splendidly fitted up. Beyond, to the south, with angulated glass roofs, run the shops. Doors open out of the offices and drafting rooms into a long, well-lighted corridor, from which one can see every part of the large machinery hall, or combination of shops, and watch the workers. In this hall, every machine, with

very few exceptions, is from the United States. In the engine house, is a Westinghouse 100-horse-power engine, of which Mr. Reinnecker speaks with pride. This he holds in reserve, so great is his reliance on its safety, security, and power to do good work. It cost him a little less than $1,500. Side by side with it is a 100-horse-power engine from the Saxon Machine Company, of this city, that cost more than $4,000.

Prior to the seventies, Mr. Reinnecker set up as his model a Swiss firm. Outstripping this in five years, he turned to England to find a model in Manchester. Before long, he saw this firm sink behind his ever-widening horizon of sales. In 1873, he went to the World's Fair in Vienna. There, as he told me, he met the mechanisms of Brown & Sharp. It was a revelation. Henceforth, these were his teachers. To outstrip these was the task he laid out for himself and sons. Three times he asked the Rhode Island firm to sell him their machine for making gear-cutters; three times he was refused. Learning that some one in Dusseldorf had designed and made such a machine, he journeyed thither, saw it, bought it, set it up, and began to make his own tools. About this time, he bought from Brown & Sharp ten or twelve machines, used some of them for models, and made one hundred or more for himself. About this time, also, Magdeburg was making great quantities of beet-root sugar and wanted cutters. Still thinking of ways and means to make out the secret of Brown & Sharp's machine, he wrote to that firm and asked that his oldest boy, a young man who had had the very best training obtainable in Germany's technical schools, be taken into their shop. This was granted, the boy sailed, entered the shops, and spent six months. What he learned, or how much, I do not know. I only know that a short time afterwards Reinnecker & Sons had invented a machine to do not only all that Brown & Sharp's did, but a great deal more. This machine was at the Chicago Fair. To-day, the firm is making cutters, microscopical almost in smallness, and cutters for cutting teeth in the biggest of driving gears. Their machine works automatically, has three shafts (spindles, he called them), and in many ways looks like some of Sharp's machines that I have seen. Their ambition is to equal and then beat the firm they have been following since 1873. They boast of successful sales in Germany and Russsia, and claim that they are Brown & Sharp's closest competitors.

Of course, they can sell cheap; at least, they should. Of the 250 to 300 men, not one is what we would call in the United States a trained artificer. There is an absence of expensive bosses and superintendents. Mr. Reinnecker and his sons do all that themselves, besides the buying, selling, and contracting. So differentiated is labor nowadays that a few captains are all that the firm needs to carry on the business. These are here in the persons of the firm and the designers or draftsmen. The men at the lathes know nothing about planning, etc. Boys, who get $1.50 a week for the first year, $1.80 the second, $2.25 the third, and $3 a week the fourth year (the term of apprenticeship is four years and in some cities five years), learn only one branch—planing, turning, etc. The highest wages paid to men per day is

$1.25, and the lowest 60 cents. Of course, compared with these prices, Brown & Sharp pay fabulous wages; but it must be remembered that these men are insured in many ways against accident, sickness, old age, etc., and the market of men and boys eager for just such work is full.

Connected with the school system of Chemnitz, is a *Fortbildung* school, to aid boys who want to build themselves up and out in this branch. The course is covered in two years, and extends over the theory and practice of tool and machine making. It is indispensable to anyone who wants to work his way up from the bench to any position of honor and trust. It is regularly attended, and has resulted in great good.

This taking in of German manufacturers' sons is a great mistake, from the manufacturers' point of view, and one common in the United States. England, I learn, labors under a similar delusion—that it does no harm. I have on my desk at this moment drawings of most intricate machinery made from memory by a German draftsman after he had gone through several shops in which he either was not allowed to, or did not venture to, take notes. Not till I saw these did I understand why it is that in German industrial, industrial-art, and technical schools more time and attention is given to drawing than to any other branch—very often twice as much.

Another, perhaps greater, mistake is made in not taking out patent rights for important machines. The German is imitative. Nothing he sees long eludes his remarkable powers to examine, analyze, and synthetize. He buys one or two machines, takes them apart, has castings made, and makes as many as he needs, and, when or where no patent rights have been taken out or reserved, he sells.

J. C. MONAGHAN,
Consul.

CHEMNITZ, *February–May, 1894.*

ROYAL INDUSTRIAL SCHOOL OF PLAUEN.

INTRODUCTION.

The industrial school of Plauen passed through many trials before it reached its present excellence and became the Royal Industrial School. For years, it was a city institution, with small quarters, very inadequate to its requirements. Gradually the necessity of such a school became manifest to the merchants and manufacturers of Plauen and the surrounding towns if they intended to keep their products up to the standard required by the great markets of the world. The then *Oberburgermeister*—Mr. Kuntze—who was also a member of the first chamber of Saxony, took the matter in hand and procured a grant from the government of Saxony to build the present school, the city of Plauen to give the land and the State to pay all expenses of building and maintaining the institution.

The land, with the cost of erecting the building, made a total outlay of

about $142,800. The yearly amount required for all expenses, including teaching, is $23,800.

This expenditure has been most amply repaid to the state by the great advancement in all branches taught in the institution and by the great improvement in the quality and beauty of the products manufactured in the Plauen consular district.

Plauen, from being a city of minor importance in industrial arts, has, since the erection of the school, become a city of world-wide reputation for its manufacture of laces and embroideries, which have a first rank in all the markets of the world.

Through the courtesy of Mr. Hoffmann, the director, and in his company, I made a careful examination of the building, and, as we went from class to class, the director explained to me the system of teaching.

THE BUILDING.

The building is of brick and sandstone, and consists of three stories and a basement. The heating is by steam and the lighting by electricity. The water supply is from a well on the premises. One engine supplies the power for all the machines in the building, as well as the electric dynamo. The school is thus independent of the city.

The basement contains the dynamo, laundry, engine room, and cellars for coal on one side; on the other, three rooms are devoted to weaving and embroidery. In these rooms, all the various machines that are used in the instruction of the scholar may be found. Connected with these machine rooms are three class rooms.

The first floor on the right consists of one large hall and a small room. In these are thousands of samples of laces and embroideries, samples of textiles from all over the world, each in its department and each under glass. On the left, is the women's department, divided into class rooms.

On the second floor, is one large exposition room, the director's private office, and class rooms.

On the third floor, are the director's private rooms. One large room in the front is the library, and the rest are class rooms. In the library, are journals and books on industrial art, as well as a very good collection of natural-history subjects, samples of wall paper and textiles, etc.

SYSTEM OF EDUCATION.

The system of education is divided into three parts: (1) the school of drawing and painting, with a class for weaving and mechanics; (2) the manufacturers' school; (3) the school of female instruction.

The first object of the school of drawing and painting is to prepare designs, which may be purchased by manufacturers. The graduates from this class become designers for some factory, or teachers in the industrial school of Plauen or in some branch school.

The school of painting and drawing is divided into three classes: (1) first class, with two divisions, A and B; (2) the middle class; and (3) the highest class, with two divisions.

PLAN OF STUDY.

The plan of study in the first division includes drawing and painting from ornaments, from plants and animals, and from nature; drawing and painting copies of laces and embroideries, designs for weaving done in colors, line drawing, geometrical projection; construction of shadows; perspective; the German language, arithmetic, and bookkeeping. In the second division, practical weaving in all its branches, to which is added thorough instruction regarding the building and management of the machine.

Drawing and painting of ornaments is done only in winter, and drawing and painting from nature only in the summer months.

SCHOOL OF MANUFACTURE.

In this branch, the student is taught the technique of manufacturing from the ground up, and should be able, when he has graduated, to make a correct calculation of the cost of manufacturing any textile article. He must, in his examination, be able to give a correct answer to any question regarding the manufacture of the particular goods that he has made. He is also taught bookkeeping, and is instructed in the German language and in arithmetic.

SCHOOL FOR FEMALES.

In the school for females, the principal branches of instruction are: Sewing, hand embroidery, cutting out, drawing, the German language, bookkeeping, machine sewing, millinery, ironing, darning, mending, and patching. Any woman who wishes to learn sewing may take a three months' course.

RESULTS.

It will be seen that when a young man graduates from such an institution he is well fitted to take a place as assistant manager or director in some manufacturing establishment, and that he brings to his employer valuable knowledge in mechanics and general management of the business, as well as an ability to design and correct the designs of others and a matured plan for the instruction of those that are placed under him.

It will be found that most of the posts of designers, which are well-paid positions in our great factories, are filled by persons of foreign birth. This should not be, and the only way to give our own youth a chance—for many of them, while they may have the ability, have not the means to come to Europe to study—is by the establishment of industrial schools in all the great centers of manufacture in the United States. This education should be as inexpensive as possible. Here the charge is but 60 marks ($14.28) per year. Only a limited number are received, and applicants must first pass an examination in drawing and general education. If they do not show a certain aptitude for the branch which they desire to take as their profession, they are not received, or, if they are accepted and do not improve in their

studies during the first year, they are dropped and their places are filled by better material, for time can not be wasted on poor material.

Certainly the question of the building of industrial-art schools and manufacturing schools should be placed before the various State governments for their action. Germany has found that such schools have been the means of bringing her products of the loom to their present perfection. Why should it not be so with us?

From what I hear from manufacturers, it seems that we compete favorably with Europe in the lower grades of goods, but that, with few exceptions, we can not do so in the better grades. There we fail in design and finish. If we wish to take higher ground in our products, we must cease to be imitators and become creators, and to do this we must be educated as Europe has been educated. The only way to attain this end is by the founding of industrial schools in connection with mechanical and chemical schools.

THOMAS W. PETERS,
Commercial Agent.

PLAUEN, *May 8, 1894.*

BRUNSWICK TECHNICAL HIGH SCHOOL.

To supply the rapidly rising demand for the proper cultivation of beets, and the cheapest, quickest, and best methods of extracting sugar therefrom, and refining the same, the Technical High School in Brunswick added to its other studies a special branch for sugar technique, which has given splendid results and has constantly grown in public favor. Sugar manufacturers generally favor the same; in fact, they always give preference to chemists and managers who have taken courses of special training for the sugar industry. The sentiment in favor of these technical schools is so strong that manufacturers would deem it to their advantage to maintain them, even if the Government or municipalities should withdraw their support.

The Technical High School comprises the following six branches: Architecture, engineering, construction of machinery (including electro-technique and textile industry), technical chemistry, pharmacy, and liberal arts and science. The sugar branch is a subdivision of technical chemistry.

To be admitted to the school, the student must be not less than 17 years old, of good moral habits, and must show that he possesses sufficient means to pay for his board and education. The students are of two kinds—regular students and transient auditors. The former must produce a certificate of a *Gymnasium*, *Real-Gymnasium*, *Ober-Realschule*, or, if foreigners, of similar institutions. The latter must show, on examination, a sufficient knowledge to be able to pursue the studies intelligently.

The matriculation fee is 8 marks. The lectures for one term of six months cost 2 marks for each weekly lecture and 1½ marks for each practical exercise. For instance, if a student takes during the term twelve lectures and six practical exercises, he pays 12×2 and $6\times1\frac{1}{2}$, or a total of 33

marks. A charge of 32 marks in addition is made for attending the exercises in the chemical laboratory, and of 17 marks for attending the same in the electro-technical laboratory. Materials used are to be paid for extra. The library consists of a large and rare collection of all kinds, and can be used by the students free of charge.

The sugar technicians follow for the first five terms (of six months each) the lectures and exercises in common with the students of technical chemistry. Their plan of studies, per week, is the following:

Studies.	Winter term.		Summer term.	
	Lectures.	Exercises.	Lectures.	Exercises.
First year (two terms).				
Mechanics	5	2	.....	.....
Experimental physics	4	.....	4	.....
Mineralogy	2	.....	3	.....
Drafting of machinery	.....	6	.....	6
Analytical chemistry	.....	.....	2	.....
Stoichiometric calculations	.....	.....	1	.....
Political economy	3	.....	2	.....
Inorganic experimental chemistry	5	.....	.....	.....
Organic experimental chemistry	.....	.....	6	.....
Botany	1	.....	.....	.....
Anatomy and physiology of plants	3	.....	.....	.....
Microscopic exercises	.....	2	.....	.....
Second year (two terms).				
Physical practicum	.....	2	.....	2
Geology	3	.....	3	.....
Mineralogical-petrographic exercises	.....	2	.....	2
Rudiments of the construction of buildings	.....	.....	3	4
General mechanical technology	2	.....	2	.....
Technical chemistry	6	.....	6	.....
Analytical chemistry	2	.....	.....	.....
Stoichiometric calculations	1	.....	.....	.....
Chemical-technical calculations	.....	.....	1	.....
Analysis of measures	1	.....	.....	.....
Theoretical chemistry	2	.....	.....	.....
Chemistry of benzole derivates	2	.....	.....	.....
Third year.				
First term:				
Description of machinery	3	.....	.....	.....
Chemistry of the artificial organic color substances	2	.....	.....	.....
Metallurgy	4	.....	.....	.....
Technical-chemical analysis	2	.....	.....	.....
Chemical-technical calculations	1	.....	.....	.....
Judicial chemistry	1	.....	.....	.....
Second term:				
Drafting of factory buildings	.....	.....	.....	6
Technical-chemical analysis	.....	.....	2	.....
Special methods of manufacturing sugar	.....	.....	4	.....
Cultivation of the sugar beet	.....	.....	2	.....
Agricultural chemistry	.....	.....	2	.....

The second term of the third year is specially provided for sugar technicians. The "technical-chemical analysis" is here extended to all products employed in the manufacture of sugar, from the raw material to the

various stages in the processes of manufacturing, and to all by-products. Special attention is paid to the present methods of manufacturing sugar.

Under "special methods for manufacturing sugar," the following subjects are taught: History of the manufacture of sugar, with special consideration of the various plants which are of local or general importance; detailed treatment of the manufacture of beet sugar, the production of the juice, diffusion and saturation, filtration of the juice through bone black, and the various methods of mechanical filtration; evaporation, working up of the residues, and the gaining of second products; refining of sirups and residues; transformation of raw into refined sugar by the various methods of refining; statistics; Government taxation and bounty.

The cultivation of the sugar beet covers the following subjects: Varieties of sugar beets, soil and climate, treatment and working of the soil, sowing and cultivation of the beet, gathering of the crop and preserving the roots, seed-growing, enemies (both animal and vegetable) and diseases of the sugar beets, how to make use of the residues and waste of the factory, payment for sugar beets according to the percentage of sugar.

Agricultural chemistry comprises the following topics: The atmosphere, its composition and influence upon the soil and the growing of plants; the soil, its origin, composition, qualities, and division; the various parts of the plants, nourishment of the plants and absorption, manuring and the various kinds of fertilizers, both natural and artificial.

Numerous excursions are made to factories and beet farms to practically demonstrate the objects of the lectures.

There is another technical sugar school in Brunswick called the "School for Sugar Industry," which is also susidized by the Government, and which was formerly the leading sugar school in Germany. To enter this school, a high-school training is not required, and it is therefore frequented mostly by persons who have practically worked in sugar factories and desire to acquire the scientific part in a condensed form. It is claimed, however, that the requirements demanded from a sugar technician nowadays are higher than those furnished in the School for Sugar Industry, and that, therefore, polytechnical schools, such as the Technical High School, where the student receives a more thorough, broader education, are the institutes of the future.

JULIUS MUTH,
Consul.

MAGDEBURG, *June 13, 1894.*

CHEFOO INDUSTRIAL SCHOOL.

My attention was called to the Chefoo Industrial School when recently in Chefoo on business connected with the United States consular agency at that port. It was then my good fortune to make the acquaintance of Rev. G. S. Hays, of the Presbyterian Mission, the founder of this school.

A cursory review of the work being carried on at the school, under the energetic management of Mr. Hays, will no doubt be instructive, as well as gratifying, to those of our citizens who are interested in mission work and profitable to those of our country who watch, for commercial purposes, the progress of any budding industry or industries.

In an article by Mr. Hays, in the March number of the Chinese Recorder, the reasons that led him to institute this school are explained. In speaking of the importance we attach to manual training in our home schools and colleges as a means of developing the well-rounded man, helpful to himself and to others, Mr. Hays puts the question:

> If this be true to any considerable extent in Christian lands, how much more is it true in such a land as China? And why specially true in China? The answer is patent to all who have given the subject an hour's honest thought.
>
> The Chinaman does not rely on self, but on his parents, on his ancestors, on his pastor, on the church. He has no courage in the face of difficulties. As a mechanic he has little skill.* The grains of truth and honesty necessary to the healthy and successful artisan have not taken root in his mental and moral make-up. He has no inventive genius. It were a sin for him to harbor so irreverent an article. The inventions were all completed and perfected for him several hundred or thousand years ago.
>
> To sum up, the Chinaman is helpless, through centuries of lack of training, and apparently so by nature. He is stuck in the mud and mire of fixed traditions.
>
> The question is, how to pull him out, set him on his feet, and teach him to exercise his legs until they become strong and able to bear him.

This state of social existence in China, as described by Mr. Hays, led him not only to consider if it were not the duty of the missionary to endeavor to better the material condition of the people to whom he is sent, but also to conclude that there is a tendency in missionary work and teaching to unfit rather than to fit the Chinaman for earning a living. Under this head, Mr. Hays says:

> Boys and girls are taken from their homes early in life, and, without effort on their own part, are provided with books, food, and clothing in mission schools for ten or fifteen years, until they are educated away from the hard life they would otherwise have led. They study western sciences, commit roll after roll of classics, but they never learn to chop off a finger nail or roll up a sleeve and go to work.
>
> Put one of them in a school, prop him up securely on all sides, furnish him with pupils, furnish him with a satisfactory salary, and all goes on harmoniously. But take away the props, and down he goes like Humpty Dumpty. Such an education goes for nothing, and worse than nothing. Such a man is not a factor in the civilization and evangelization of the land; he is entirely too aristocratic to attend markets and associate with dull clods of farmers.
>
> If, after years of educating, the pupil is unfitted to shift for himself, then the church has done him an irreparable wrong, in that her representatives have unfitted the man to manage for himself.

The above are some of the ideas that led Mr. Hays, as a means of counteracting the inertia fostered by teaching that tends to make the Chinaman even more helpless as a member of society than he otherwise would have been, to introduce something in the way of manual training into the educational

* It must be remembered that, in making this assertion, Mr. Hays is speaking of the natives of the Shantung province.

work carried on by his mission at Chefoo. This step evidently was undertaken none too soon, as Mr. Hays says:

> Our pupils were sick. Bundled up in thickly wadded garments; sleeping, studying, and reciting in badly ventilated rooms; eating such quantities of grease and strong food as only a Chinaman can undertake to digest, and withal taking no exercise whatever, they were strangely affected about the regions of the stomach, throat, and lungs. Many were consuming quarts of medicine, some were spitting blood, and a large majority were afflicted with a pronounced type of dyspepsia.

Industrial work was consequently begun to counteract this state of things. In the beginning, the pride of the Chinaman had to be overcome. The idea of manual labor was at first regarded by the pupils as an indignity, and threats were made that they would leave in a body; but, undaunted by this insubordination, Mr. Hays proceeded to formulate and organize his scheme.

The boys were told that they might work an hour and a half each day with wages, or exercise for the same time daily without wages. The majority preferred the wages. Several acres of land were secured, and the boys were put to work digging wells, carrying earth, laying out grounds, planting trees and flowers, and sowing crops of beans, corn, and wheat.

Canning fruit.—The late Dr. Nevins, of the Presbyterian Mission at Chefoo, had successfully introduced foreign fruits into the province of Shantung. The time had come when the growers of these fruits were suffering evident loss through much of the fruit going to waste. Mr. Hays therefore conceived the idea of starting a canning industry with his staff of pupils. Economical furnaces were built for stewing the fruits; men were trained to stew and sweeten them and perform the necessary details of putting them into cans labeled and ready for the market. At present, the canning force consists of thirty or more schoolboys, who pare and cut fruit an hour and a half daily; two men, with an assistant coolie in training, who give their whole time to canning fruits and jams; and two tinners.

A tool was invented for stamping the tops and bottoms of the tins, which otherwise would not have been strong and reliable. The tins, as well as the jams, are made on the mission premises. These preserved fruits are finding a ready market among the foreign residents of Chefoo, Tien-Tsin, and Peking, as they are recognized to be of superior quality, unadulterated, and cheaper than foreign preserves.

Photography.—The Shantung promontories are beautiful and picturesque. Mr. Hays had given considerable attention to photography. His plant in the shape of cameras, lenses, sensitizing and toning outfits, developing pans, mount paper and chemicals, etc., was turned over to the industrial school; also a fine stock of negatives, illustrating almost every phase of life in Shantung, methods of travel, utensils, weddings, processions, Chinamen on the go and at a standstill, and women and children in the house and in the school. The boys took readily and earnestly to this pleasant occupation. They have been taught to silver paper, print, tone, fix, wash, mount, and make negatives, and several of them retouch and color the photographs. No traveler leaves Chefoo without taking with him a stock of these interest-

ing views. During the past five months, photography has brought into the school over $400.

Lace-making.—A novel feature of this school, lately added, is the teaching, by the wife of Mr. Hays, of the art of silk, handmade pillow, or torchon lace-making to Chinese women and girls. The process has been slow and tedious, but, from the many excellent specimens shown me of the work done by the women, I should judge that the art has been successfully instituted. The lace shows fine, conscientious workmanship. According to widths—ranging from three-fourths of an inch to 1½ inches—it can be made in any color and of any design at from 35 to 65 cents (Mexican) per yard. It seems to me that this lace should find a ready market in our country, and I trust that the notice given here to this budding industry may attract the attention of some of our importers. Lace-making, if encouraged, will undoubtedly give employment to thousands of poor and needy native women, who are necessarily idle for several months of each year. A room has been added to the school for the purpose of receiving women during the winter days and teaching them lace-making.

At present, it seems that the work being done in this school is all in the direction of meeting and supplying foreign demand. This is but natural, as the school is under the direction of foreigners, who see and appreciate their own needs. But it is to be hoped that the Chinese youth now being taught that manual labor is anything but degrading will in time discover occupations that will be beneficial to the Chinese themselves. Unless this is the result of their teaching, the existence of the present undertaking is ephemeral, in that it will flourish only so long as it is under the direct supervision of foreigners. Labor fraught with enduring results is bound in the long run to appeal to the Chinese as worthy of any effort expended.

SHERIDAN P. READ,
Consul.

TIEN-TSIN, *April 28, 1894.*

THE RAILWAYS OF AUSTRALIA.*

The railways of Australia practically represent the assets for the national debts of each colony, and to-day would probably realize, if they were to be disposed of, the full amount of the national indebtedness. It is, however, improbable that the people concerned will ever allow these great possessions to pass into private hands, believing that they should be retained to open up and develop the resources of the colonies and aid in the material progress of Australia.

It is agreed, however, that, to a certain extent, the railway administration should be separated from politics. The construction and direction of new lines may well be left to Parliament to determine, but the management

*Other reports on railways in Australasia have been published in CONSULAR REPORTS as follows: No. 16, p. 264; No. 44, p. 735; No. 51, p. 593; No. 53, p. 146; No. 97, p. 598; No. 102, p. 353.

of the lines and control of the railways' daily working, it is held, are matters for skilled and capable railway managers, untrammeled by the exigencies that political considerations would often cause to influence the political mind.

The statutes of the colonies placing the railways under the existing commissioners—Victoria in 1883, South Australia in 1887, New South Wales in 1888, and Queensland in 1888—have, to a large extent, provided for the management of the railways on commercial, as separate from political, lines. Each railway system is under the control of three commissioners, who have had large powers to administer, free from political interference; and those best able to judge are of the opinion that the system has worked well. The Parliament of Victoria, however, has recently thought it well to amend the act passed in 1883 by limiting the power of the railway commissioners and giving to the railway minister of the day greater power to interfere in the management of the lines. Sufficient time has not yet elapsed to demonstrate whether the change is a wise one, but fears are expressed that the change will not work well. Experience in railway management can only be acquired by years of study and practical work, and the political manager, however anxious to do good, may at any time, through lack of experience and railway knowledge, do much harm. In the other colonies the result of the railway working under the capable commissioners that have been appointed has been most satisfactory, and the people are content to leave the conditions generally as they are at present.

Turning to the existing railways, it will be seen that they assume good proportions on the face of Australia, and it is a necessity in this continent, perhaps more than in any other, that railways should be spread over the land to open it up to settlement. Unfortunately, the interior is without reliable river courses; the rivers that do exist are too shallow and uncertain to allow of perfect dependence being placed on them at all times, and the railways must come in to give a continuous and reliable means of communication between the inland plains and the seacoast. This explains the continual demand for new lines of railway as the only reliable means of internal development; and, though it would be distinctly unwise to attempt to diminish any of the safeguards that have been adopted for the prevention of expenditure upon commercially hopeless lines, a too close scrutiny of the immediate ability of new routes to be made remunerative—bearing in mind that the railways are not only the main arteries of industrial communication, but the real pioneers of settlement, developing the immense resources of inland Australia wherever they trend—should not be allowed to weigh too heavily against their construction. A reliable, ready, and not too expensive means of communication with the seaboard is as necessary to the settler and producer as even the land itself.

A glance at the map of the colonies will show that colonial legislators have not been unmindful of the importance of railways. In every direction are long lengths of trunk lines evidencing this fact. The completion of the

now celebrated bridge over the Hawkesbury brought the four principal cities of the colonies into direct railway communication, and, viewed from the population-per-mile-of-line point, Australia can boast, even now, of being better served by its railways than any country in the world. The various Parliaments are still occupying themselves selecting and determining upon new lines, and entertain no proposal in New South Wales or Victoria, unless the special personal investigation by a public works committee indorses the desirability and commercial prudence of entertaining the proposal. The railway commissioners also furnish reports as to the probable traffic on any new line, and the probability of the line proving a commercial success. To the British investors, upon whom the Australians are so largely dependent for means to carry on these national works, such safeguards are an exceptional guaranty that the railway loans are judiciously and carefully administered.

The new lines under construction at the present time in New South Wales represent a total addition of 67 miles to the service; in Victoria, 48 miles are being proceeded with; in Queensland, 6 miles; in South Australia, 57½ miles; in Western Australia, 111 miles. Now that Western Australia has become a self-governing colony, it is likely that greater impetus will be given to railway construction.

By way of showing, comparatively, the progress of railways in Australia, it may be remarked that here there is one mile of railway to each 344 inhabitants, as against 1,888 in Great Britain and 350 in the United States.*

Colony.	Date.	Population.	Miles of railway.	Population per mile.
New South Wales	June 30, 1893	1,197,000	*2,351	509
Queensland	.....do.....	421,300	2,373	178
South Australia	.....do.....	335,000	1,164	201
Victoria	.....do.....	1,167,300	2,975	392
Western Australia	Dec. 31, 1892	58,674	2,204	288
Total	.....do.....	3,179,274	9,067	350.64

*112 miles opened since June 30, 1893.

The dates given are those of the latest published reports, and refer to Government lines only.

The aggregate of the national debt of the colonies would appear to be disproportionate when compared with the limited population of Australia, and complaints have frequently been made in the English press that the colonies are unmindful of the *festina lente* and all the good advice that convenient adage is supposed to infer. The adverse criticism has not, however, up to the present had a shadow of justification. Let it be remembered that the money borrowed has not been sunk in undertakings which will give no return, but has been expended in works which are reproductive, yielding a direct return on the capital and representing a greater value than the original cost; for instance, the New South Wales lines, costing about

*NOTE BY THE DEPARTMENT.—The table immediately following shows one mile of railway to every 350.64 inhabitants. Even after adding the 112 miles increase for New South Wales, noted by the consul, it only gives one mile to every 346.3 inhabitants.

£34,500,000 ($157,879,000), are estimated to be worth more than £40,000,000 ($194,640,000). Further, the money has been spent in developing large resources which add to the wealth of the colonies. It is wise to emphasize this point, as it seems to have been overlooked to a large extent. In Europe the national debts of the various countries have been incurred principally through the expenses of prolonged wars, and the money has gone beyond recovery; but in these colonies the expenditure is represented by public works which are more valuable than the entire national debt and pay a direct return, in some cases, equal to the interest due upon the capital invested.

The capital expended on the railways in these colonies and the expenditure per head were:

Colony.	Date.	Capital expended.	Per mile of line.	Capital expended per head of population.
				£ s. d.
New South Wales*	June 30, 1893	£34,657,571	£14,743	28 19 1
Queensland	....do....	16,230,490	6,840	38 10 6
South Australia	....do....	11,936,256	7,174	35 12 6
Victoria	....do....	37,462,372	12,665	32 1 10
Western Australia	Dec. 31, 1891	905,974	4,441	15 8 8

*Government railways only.

The railways in all the colonies, with the exception of one or two lines, belong to the state. In New South Wales, the first railways were projected as far back as 1846, and a few years afterwards a company—the Sydney Tram and Railways Company—was formed. The company undertook the construction of a line from Sydney to Parramatta, a distance of 14 miles; but, as the capital became absorbed before the work was completed, the company was unable to carry on operations, and, in the end, the Government had to take over the line, which was finished on the 26th of September, 1855.

A company also contemplated constructing a line from Newcastle to Maitland, but was unable to surmount the preliminary difficulties.

There are in New South Wales two important public lines constructed and maintained by private companies: (1) the railway between Deniliquin, in Riverina, and Moama, on the Murray River, 45 miles in length; (2) a private line between Broken Hill, Silverton, and the South Australian border (35 miles), connecting with the South Australian lines, which, owing to the large traffic done with the Broken Hill mines, has been a financial success.

There is a considerable number of private minor lines, principally running to coal mines. In the Newcastle district, there are 200 miles of private lines almost entirely used for the coal traffic.

In Victoria, the railways are under State control, although they were initiated by private enterprise. By March, 1853, three companies had been incorporated and secured extraordinary concessions in the shape of land and guarantied interest. The Melbourne and Murray River Company was forced to sell to the Government in 1855, before any of their lines had been opened

for traffic. The Geelong-Melbourne Company followed the same course in 1860, and only the Hobson's Bay Railway Company held its own for some years, but, in 1878, it sold its interests to the Government for the sum of £1,320,800.

The system of placing the railways under the management of commissioners and practically separating them from political control has been adopted in the four principal colonies, and, as already stated, experience is proving that the change has been a very wise one.

In each colony, the board of commissioners consists of three members. The chief commissioner of New South Wales is Mr. E. M. Eddy; the chairman in Victoria, Mr. R. H. Francis; and in South Australia, Mr. J. H. Smith. In Queensland, the commissioners deal with the contracts for the lines under construction, which in New South Wales and Victoria are dealt with by separate authorities.

In Western Australia, railway construction is in its infancy. There are 204 miles of line constructed and managed by the Government, and, in addition, about 453 miles of line are owned by private companies. The first line was opened as recently as July, 1876, and, latterly, much progress has been shown, the land-grant system having to some extent been adopted.

In Queensland, the railways are owned by the State, the first line having been opened in July, 1865.

It is unfortunate that in no two adjoining colonies are the railway gauges alike. The battle of the gauge has been a severely fought one in Australia, and the result has been disastrous. Victoria, New South Wales, and South Australia commenced their railway history almost at the same time, but a different gauge has been adopted in each colony. The evil of this want of uniformity, as the lines of the principal colonies have become connected, is practically felt every day. Goods arriving from one colony to be sent across the borders into the other have to be transferred, the labor and inconvenience that this entails adding considerably to the cost of carriage, while passengers also, at each border, with one exception—between Adelaide and Melbourne, where a through line exists—have to leave one carriage to enter another belonging to the sister colony.

The matter received much consideration at the opening, in May, 1889, of the railway bridge over the Hawkesbury. Representatives from all the colonies were present at the opening of this magnificent structure, which practically united the railway systems of the four principal colonies. All the speakers were unanimous as to the necessity for the uniform gauge between the colonies, both for the convenience of the every-day traffic and in view of the necessity for the expeditious transport of troops.

The question is being considered in the various colonies, and it is to be hoped that soon some practical result will follow.

In Victoria, a gauge of 5 feet 3 inches has been adopted, while in New South Wales, that known as the standard gauge—4 feet 8½ inches—has been taken. The private line from Deniliquin to Moama (New South Wales) is laid to the Victorian gauge.

The policy adopted in regard to the gauge in South Australia seems to be an erroneous one, as both gauges have been adopted in this colony. It may be an open question whether the broad or narrow gauge is the more suitable for the colonies, with their limited population; but it appears to be a mistake to have both in the one colony, where the lines laid on different gauges meet.

Goods sent from the district where a narrow-gauge line exists may have to be sent, before reaching their destination, over a broader road, and the consequence is that both unnecessary labor and expense are involved, and oftentimes valuable time is lost in the transfer of goods.

In Queensland, the narrow gauge of 3 feet 6 inches has been adopted throughout, and in Western Australia, both the Government and private lines are laid on the narrow gauge. The adoption of the light, narrow-gauge railways in these latter colonies has been due to the desire to open up the inland districts without delay. Railways, it is urged, are the cheapest and best roads, and form a primary element in the material advancement of a nation, being essential to the development of internal resources. It was suggested, and it even seemed at one time as if the proposal would be carried out, that a heavy permanent way should be laid from Sydney to Bathurst and Goulburn, New South Wales, and horse trams adopted beyond these points. Wiser counsel, however, prevailed, and a substantial line has been laid throughout, allowing fast express trains to be run. In many districts in these colonies, the progress following the development of their resources by speedy means of communication is so rapid that it would appear in most instances to be better to construct a substantial, permanent way, lightly ballasted and sleepered, perhaps, in the first instance, rather than to lay down cheap lines, which before many years would require extensive alterations.

The gauges adopted by the colonies can be seen at a glance by the following figures:

	Ft.	In.
New South Wales	4	8½
Queensland	3	6
South Australia	5	3
	3	6
Victoria	5	3
Western Australia	3	6

The lines have been constructed generally by private firms under the supervision of the Government engineers.

In New South Wales and Victoria, the lines are fenced throughout, but in the other colonies, they are only partly fenced.

In Victoria, the lines are all connected at one central terminus, although three important coast ports are touched. The western line terminates at Portland Bay; Geelong intercepts a large quantity of the wool and grain that would otherwise go to Melbourne. A hardship was entailed upon the residents in the western district of Victoria by the circuitous route the railway had taken. From Melbourne to Ballarat, the distance is about 70 miles,

but the railway from Melbourne, which runs via Geelong, makes the journey 100 miles. The people of Ballarat and of the western district were thus saddled with an unnecessary 30 miles of carriage. A direct line has now been constructed from Melbourne to Ballarat, at a saving of 26 miles upon the old route.

Victorian lines are wisely planned to afford the benefit of railway communication to all the principal ports of the colony. The Murray is tapped at six places, viz, at Wodonga Wahgunyah, Yarrawonga, Cobram, Echuca, and Swan Hill. These lines attract a good deal of traffic from Riverina, New South Wales; but, as the New South Wales lines have recently been extended into the heart of Riverina, there is much competition for the traffic, and, in consequence, the residents and traders of this port receive good railway facilities and exceptionally low rates.

The New South Wales railways are now united, Sydney being the center of the railway systems. The lines touch several other seaports, viz, Wollongong and Kiama on the south and Newcastle on the north. A branch, distinct from the parent system, is now under construction in the extreme northern district of New South Wales, viz, from Lismore, on the Richmond River, to the Tweed River, a distance of 62 miles.

In Queensland and South Australia, a different practice has been adopted, several systems entirely distinct from each other being in existence. The lines, in each case, start from a seaport, and thus enable the producers inland to bring their goods quickly and cheaply to a market for sale or shipment. The principle of having disjoined lines, however, while opening up the country, causes the expenses to be high in proportion to the mileage traveled and traffic carried.

The gross earnings, etc., of the railways of the colonies for a year's traffic to June 30, 1893, are given below:

Colony.	Gross earnings.	Per average mile.	Working expenses.	Per average mile open.
New South Wales	£2,927,056	£1,264	£1,738,516	£750
Queensland	1,022,677	433	638,889	270
South Australia	1,007,059	606	640,122	385
Victoria	2,925,948	998	1,850,291	631
Western Australia	94,201	476	90,654	458

The net earnings and percentage to capital were:

Colony.	Net earnings.	Percentage of working expenses to gross earnings.	Net earnings per average mile.	Percentage to capital expended.
		Per cent.		*Per cent.*
New South Wales	£1,188,540	59.39	£514	3.48
Queensland	383,788	62.47	162.5	2.365
South Australia	366,937	63.56	221	3.07
Victoria	1,075,657	63.23	367	2.87
Western Australia (December 31, 1892)	3,547	96.2	18	0.26

The train miles run in the various colonies and the results were:

Colony.	Train miles run	Gross earnings per train mile.	Working expenses per train mile.	Net earnings per train mile.
	Miles.	*Pence.*	*Pence.*	*Pence.*
New South Wales	7,505,310	93.5	55.5	38
Queensland	3,755,655	65.35	40.83	24.52
South Australia	3,670,390	65.85	41.86	23.99
Victoria	10,775,134	65.17	41.21	23.96

The freight carried was as follows:

Colony.	Freight.	Average mile of line.	Wool carried.
	Tons.		*Tons.*
New South Wales	3,773,843	1,457	107,491
Queensland	720,587	305	(*)
South Australia	970,805	584	22,117
Victoria	3,386,888	1,154	(*)

*Not kept separately.

The pastoral is the principal industry of the colonies. The wool traffic has been the largest in New South Wales, no less than 661,893 bales having been carried in the past wool season. In Victoria, a large proportion of the total quantity of wool carried was for reconsignment from Melbourne to the shipping places.

The number of passengers carried and coaching vehicles in the colonies was:

Colony.	Passengers carried.	Average per mile.	Coaching vehicles.	Passengers carried per vehicle.
New South Wales	19,932,703	8,607	1,053	18,930
Queensland	*2,120,163	900	347	6,110
South Australia	5,547,053	334	342	16,220
Victoria	58,445,075	19,926	1,263	46,275

*Exclusive of season tickets.

In South Australia, Victoria, and New South Wales, there are two classes of passenger traffic. The third class was in operation in all three colonies at one time, but was found to work unsatisfactorily and was abolished.

The passenger traffic in Victoria stands far above that in the other colonies, due to the immense traffic on the Melbourne suburban lines. In Adelaide, South Australia, the suburban traffic is principally taken by trams owned by private companies. In Sydney, the suburban traffic is largely carried over the city and suburban trams, which are under the control of the railway commissioners. For the year ending June 30, 1893, the number of passenger fares collected was 69,403,094, and, although the fares are low, the earnings were £295,367. Forty-nine miles of lines are open. The cars

on the city and suburban lines are worked by steam motors, but those at North Sydney are worked partly by cable and partly by electricity. Last year, the trams paid 5.51 per cent net.

A great deal of consideration has been given to the question as to which is the cheapest system for working tramways—steam, cables, or electricity. The matter had attention more particularly in connection with the proposal to construct a line of tramway from Sydney to the eastern suburbs. The proposal to make the tramway was first submitted, as is usual with all important public works in New South Wales, to the Parliamentary public works committee. A local Government engineer of repute was directed to make full inquiry as to the systems (electric and cable) in the United States, and a mass of evidence was submitted to them in favor of the rival schemes. Probably the matter was never more thoroughly sifted or more carefully considered, and the outcome of their deliberations was (by a narrow majority in a committee of thirteen) to recommend the Government to lay down the line on the cable system as being the most suitable to the requirements of the city of Sydney and suburbs, and the line to Woollahra is now being made, but will not be completed before the middle of 1894.

It may be interesting to mention that a short trial line of 1½ miles worked by electricity on the overhead-wire system (Thomson-Houston) was laid down at Randwick; but, after some months' trial, it was not found economical, and the old system of working the line by steam motors was reverted to. The plant has, however, been transferred to North Sydney, to work the line from Ridge street to the North Sydney road.

The locomotives and goods rolling stock in use on the railway lines were:

Colony.	Locomotives.	Goods cars.
New South Wales	515	10,551
Queensland	261	3,779
South Australia	258	6,180
Victoria	499	8,843

In the manufacture of the rolling stock, efforts are made to have the work done as far as possible in the colony. In all the colonies, the bodies of the goods trucks and passenger carriages are made locally, and in Victoria, the locomotives are locally manufactured. In New South Wales, portions of the locomotives have been made in the colony, and, although contracts have been let for supplies of engines, the undertakings have failed, and the supplies are being obtained from abroad.

In South Australia, the locomotives required are now being made in the colony.

In Queensland, a tender has recently been accepted for locomotives, said to be very little above the cost of imported engines.

The permanent-way materials required have always been imported by all the colonies. As New South Wales has extensive and rich deposits of iron

ore, etc., and abundance of coal, endeavors are being made to have the rails required manufactured in the colony; but so far the efforts have not met with much success.

The characteristics of the country are different in the different colonies.

In Victoria, the lines are, comparatively speaking, level, the gradients, except in a few instances, being easy, and a powerful engine is enabled to take through loads of about 250 tons. The highest point above sea level reached by the rails is 2,452 feet.

In New South Wales, the conditions are different. The lines on every side have to cross rough and precipitous mountain ranges before reaching the interior plains. The gradients to be encountered are both numerous and heavy, and loads of goods of about 100 tons are considered full loads over the mountain lines for an ordinary engine; but, to meet the peculiar conditions of the New South Wales lines, the railway commissioners have recently obtained exceptionally powerful engines for hauling greater loads. These engines weigh, when in steam, about 90 tons, and, so far, are giving most satisfactory results. The goods engines, for instance, have taken as much as a total of 300 tons up a grade of 1 in 40, the weight of the goods hauled being 184 tons, the balance being the weight of the vehicles.

Large goods wagons have also been introduced, having a carrying capacity of 22 tons with a tare of 10 tons.

There are no less than 486½ miles of line where the grades range from 1 in 30 to 1 in 60, and, altogether, there are 1,106 miles of line with grades ranging from 1 in 30 to 1 in 150. The greatest height of the rails above sea level, on the southern and western lines, is at Clarence Siding, on the western line (3,658 feet). Near this place, the line descends to the Lithgow Valley by the famous zigzag, an engineering work which has elicited expressions of admiration from all who have visited it. But, in view of the increased traffic, and in order to obtain easier grades, Parliament is to be asked to vote funds for a deviation of the line at this point. On the Northern Railway the rails reach the height of 4,471 feet above sea level at Ben Lomond, the highest point reached by the railways in Australia.

The conditions in Queensland are somewhat similar to New South Wales, the lines having to cross the coast ranges and reaching a height of 3,008 feet at Thulimbah. In South Australia the lines are, generally speaking, level. In one instance, at Hallett, on the north line, the rails are 1,970 feet above sea level; and on the main line, from Melbourne to Adelaide, the rails at Mount Lofty station, on the Mount Lofty range, are 1,611 feet above the sea level.

The railways of the colonies have been comparatively free from terrible accidents. During the period 1892–'93, there were no fatal accidents upon New South Wales railways to passengers from causes beyond their own control, and the proportion of injuries to passengers was 0.4 per 1,000,000.

While much has been done in the colonies in the matter of railway construction, great activity is now being shown in the construction of new lines, and the colonies are being surveyed in all directions in connection with pro-

posed railways. The most important proposal is to make what is known as the Transcontinental—a line running from the Gulf of Carpentaria through the whole of Queensland and on to meet proposed extensions from the railway lines of New South Wales and South Australia. The question is again being revived.

The Transcontinental line was first mooted by a syndicate of English capitalists, who proposed to make the line on condition that they received a certain quantity of land and a guaranty from the Government. The Government of Queensland (1882–'83) were inclined to look upon the proposal favorably; but their action precipitated a ministerial crisis in the northern colony.

In Western Australia, however, arrangements have been concluded with a syndicate for the construction of a long line of railway, the company receiving a large grant of land in consideration of the construction of the line and the permanent settlement, by the contractors, of immigrants within the colony.

Several extensions are now under consideration in New South Wales. The northern line connects with the Queensland lines at Wallangarra.

The New South Wales and Victorian railways join at Albury. The Victorian railways already approach the border of New South Wales at six points, and a line has recently been opened from Dimboola to the South Australian border, meeting a line from Adelaide. A branch from the present western line has been constructed to Casterton.

The South Australian lines have reached out their arms toward the adjacent colonies, the main north line reaching Morgan, on the Murray River; and the line from Kingston running to Border Town, near the boundary of Victoria, while a line has been made from Terowie to the New South Wales border, near Silverton. The inland terminus of the Rivoli Bay and Mount Gambier line is also within a short distance of the Victorian border.

It is interesting to note the distance between the capitals of the colonies of South Australia, Victoria, New South Wales, and Queensland. From Adelaide to Melbourne it is 483 miles; from Melbourne to Sydney, 579 miles; and from Sydney to Brisbane, 723 miles; so that a person takes a through railway journey of 1,782 miles in traveling between the capitals. Unfortunately, three gauges have to be passed over, viz, 5 feet 3 inches, 4 feet 8½ inches, and 3 feet 6 inches.

The longest railway journey that can at present be made in Australia is from Charleville, in Queensland, to Oodnadatta, in South Australia, via Brisbane, Sydney, Melbourne, and Adelaide, and the through distance is no less than 2,953 miles.

The prospects of the railway systems of the colonies must be considered as very satisfactory. Already, as a whole, they pay a fair return for the capital that has been expended, while the benefits they confer in opening a cheap and convenient mode of transit and generally in furthering the trade and interests of the colonies are incalculable.

The question of percentage of expenses to receipts is one to which great attention is given in railway management, and it is satisfactory to find, by the latest returns available, that this item is well kept down on the colonial lines, although not at the expense of efficiency. The following are the latest figures on the subject: New South Wales, 50.08 per cent (December, 1893); Queensland, 62.47 per cent (June, 1893); Victoria, 52.7 per cent; Western Australia, 96.2 per cent (December, 1892).

The transactions, rolling stock, etc., of the principal railways of Australia for the year ending June 30, 1892, were as follows:

Miles open.—New South Wales, 2,351 miles (112 miles opened since June 30, 1893); Queensland, 2,373 miles; South Australia, 1,164 miles; Victoria, 2,975 miles.

Capital cost.—New South Wales, £34,657,571; Queensland, £16,230,490; South Australia, £11,936,256; Victoria, £37,462,372.

Average capital cost per mile.—New South Wales, £14,743; Queensland, £6,840; South Australia, £7,174; Victoria, £12,665.

Train miles.—New South Wales, 3,826,804 miles for goods and 3,678,506 miles for passengers; Queensland, 3,755,655 miles; South Australia, 3,670,390 miles; Victoria, 10,775,134 miles. The train miles for passengers and goods for Queensland, South Australia, and Victoria are not shown separately.

Coaching earnings.—New South Wales, £1,092,338; Queensland, £318,730; South Australia, £311,034; Victoria, £1,508,867.

Percentage of coaching earnings.—New South Wales, 37.62 per cent; Queensland, 31.17 per cent; South Australia, 30.88 per cent; Victoria, 51.57 per cent.

Coaching earnings per mile of line.—New South Wales, £471.6; Queensland, £134.3; South Australia, £267.7; Victoria, £514.6.

Coaching earnings per train mile.—New South Wales, 71.27*d.*; those for Queensland, South Australia, and Victoria not given.

Passengers carried.—New South Wales, 19,932,703; Queensland, 2,120,163 (exclusive of season-ticket holders); South Australia, 5,547,053; Victoria, 58,445,075.

Passengers carried per mile of line.—New South Wales, 8,607; Queensland, 900; South Australia, 334; Victoria, 19,926.

Goods earnings.—New South Wales, £1,811,180; Queensland, £703,947; South Australia, £696,025; Victoria, £1,417,081.

Percentage of total goods earnings.—New South Wales, 62.38 per cent; Queensland, 68.83 per cent; South Australia, 69.12 per cent; Victoria, 48.43 per cent.

Goods earnings per mile of line open.—New South Wales, £782; Queensland, £296.7; South Australia, £598.9; Victoria, £483.4.

Goods earnings per train mile.—New South Wales, 113.59*d.*; earnings for Queensland, South Australia, and Victoria not given.

Number of tons carried.—New South Wales, 3,373,843 tons; Queensland, 720,587 tons; South Australia, 970,805 tons; Victoria, 3,386,888 tons.

Gross earnings.—New South Wales, £2,927,056 (inclusive of sundries and miscellaneous, £23,538); Queensland, £1,022,677; South Australia, £1,007,059; Victoria, £2,925,948.

Gross earnings per mile open.—New South Wales, £1,263.8; Queensland, £433; South Australia, £606; Victoria, £998.

Gross earnings per train mile.—New South Wales, 93.6*d.*; Queensland, 65.35*d.*; South Australia, 65.85*d.*; Victoria, 65.17*d.*

Working expenses.—New South Wales, £1,738,516; Queensland, £638,889; South Australia, £640,122; Victoria, £1,850,291.

Working expenses per mile open.—New South Wales, £750.6; Queensland, £270.5; South Australia, £385; Victoria, £631.

Working expenses per train mile.—New South Wales, 55.59*d.*; Queensland, 40.83*d.*; South Australia, 41.86*d.*; Victoria, 41.21*d.*

Maintenance of way and works.—New South Wales, £474,142; Queensland, £274,473; South Australia, £159,390; Victoria, £327,959.

Maintenance per train mile.—New South Wales, 15.16*d.*; Queensland, 17.54*d.*; South Australia, 10.44*d.*; Victoria, 7.31*d.*

Locomotive power.—New South Wales, £557,554; Queensland, £180,605 (includes carriages and wagons); South Australia, £256,370 (includes £1,041 for horse power); Victoria, £607,702.

Locomotive power per train mile.—New South Wales, 17.83*d.*; Queensland, 11.55*d.*; South Australia, 16.76*d.*; Victoria, 13.53*d.*

Carriages and wagons.—New South Wales, £129,188; South Australia, £46,492; Victoria, £127,581.

Carriages and wagons per train mile.—New South Wales, 4.13*d.*; South Australia, 3.04*d.*; Victoria, 2.83*d.*

Traffic expenses.—New South Wales, £503,137; Queensland, £157,807; South Australia, £158,785; Victoria, £668,717.

Traffic expenses per train mile.—New South Wales, 16.09*d.*; Queensland, 10.08*d.*; South Australia, 10.38*d.*; Victoria, 14.9*d.*

Compensation.—New South Wales, £3,590; South Australia, £260; Victoria, £6,433.

Compensation per train mile.—New South Wales, 0.11*d.*; South Australia, 0.01*d.*; Victoria, 0.14*d.*

General expenses.—New South Wales, £70,885; Queensland, £26,005; South Australia, £18,825; Victoria, £111,899.

General expenses per train mile.—New South Wales, 2.27*d.*; Queensland, 1.66*d.*; South Australia, 1.23*d.*; Victoria, 2.5*d.*

Net earnings.—New South Wales, £1,188,540; Queensland, £383,788; South Australia, £366,937; Victoria, £1,075,657.

Net earnings per mile open.—New South Wales, £513.2; Queensland, £162.5; South Australia, £221; Victoria, £367.

Net earnings per train mile.—New South Wales, 38.01*d.*; Queensland, 24.52*d.*; South Australia, 23.99*d.*; Victoria, 23.96*d.*

Number of locomotives.—New South Wales, 515; Queensland, 261; South Australia, 258; Victoria, 499.

Average earnings per locomotive.—New South Wales, £5,638; Queensland, £3,918; South Australia, £3,903; Victoria, £5,884.

Number of coaching vehicles.—New South Wales, 1,053; Queensland, 347; South Australia, 342; Victoria, 1,263.

Average earnings per coaching vehicle.—New South Wales, £1,037; Queensland, £930; South Australia, £910; Victoria, £1,194.

Number of goods and live-stock wagons.—New South Wales, 10,551; Queensland, 3,779; South Australia, 6,180; Victoria, 8,843.

Average earnings per goods and live-stock wagon.—New South Wales, £172; Queensland, £186; South Australia, £113; Victoria, £160.

Proportion of expenditure to receipts.—New South Wales, 59.39 per cent; Queensland, 62.47 per cent; South Australia, 63.56 per cent; Victoria, 63.23 per cent.

Proportion of gross earnings to capital.—New South Wales, 8.5 per cent; Queensland, 6.3 per cent; South Australia, 8.35 per cent; Victoria, 7.81 per cent.

Proportion of working expenses to capital.—New South Wales, 5.02 per cent; Queensland, 3.94 per cent; South Australia, 5.36 per cent; Victoria, 4.94 per cent.

Proportion of net earnings to capital.—New South Wales, 3.48 per cent; Queensland, 2.36 per cent; South Australia (on average miles open), 3.07 per cent; Victoria (on average miles open), 2.87 per cent.

NEW SOUTH WALES.

[Compiled from the report of the railway commisioners.]

The working of the railways and tramways during the past year must be regarded as highly satisfactory. Although there was a considerable falling off in the gross receipts, the net earnings showed an increase. This was entirely due to judicious management and retrenchment effected without impairing the efficiency of the service. The year was one of exceptional anxiety and difficulty in consequence of the great financial disturbance which has affected the colonies, and also, in a smaller measure, owing to the drought in the far west at the beginning of the season and floods in the Hunter River district during the month of March last.

Length of line.—On June 30, 1893, there were 2,351 miles open for traffic, being an increase of 73 miles over the mileage of the previous year. During the year 98 miles of line were either completely relaid, rerailed, or resleepered, while 208 miles were lifted and reballasted. Several iron-girder bridges, reported upon by the royal commission on bridges in 1885–'86, were also strengthened.

New lines.—The following extensions were opened for traffic since June 30, 1892: Culcairn to Corowa, 47½ miles; Milson's Point extension, 2¾ miles; Kiama to Nowra, 22½ miles; Cootamundra to Temora, 39 miles; Molong to Forbes, 73 miles, leaving still under construction the Lismore to the Tweed line, 62½ miles, and the Marrickville to Burwood line, 5 miles.

The capital cost of the lines open for traffic on June 30 amounted to £34,657,571. To meet this expenditure £29,210,075 has been raised by the issue of debentures, the balance having been provided out of the general funds of the colony and by treasury bills. Debentures to the value of £1,201,075 have been finally paid off. The total cost of the lines upon which interest has to be paid was £33,456,496.

Revenue.—The revenue derived from the working of the lines for the year was £2,927,056, and the expenses amounted to £1,738,516, or 59.39 per cent of the gross revenue,

leaving a net revenue of £1,188,540 toward paying interest on capital, or a return of 3.48 per cent upon the total cost of the railways open for traffic. The revenues show a decrease of £18,040, due principally to the exceptional financial disturbances, floods in the northern districts, and drought and rabbits in the western districts. Of this sum the coaching traffic was responsible for £74,189, and the goods for £106,051. The earnings per train mile showed satisfactory results, every mile run having earned 7*s.* 9½*d.*, as compared with 7*s.* 5¼*d.* in the preceding year. The expenditure per train mile was 4*s.* 7½*d.*—a net earning of 3*s.* 2*d.* The net earnings showed an increase over the previous year, in spite of the adverse circumstances referred to above, of £556, making an accumulated increase in net profits paid into the treasury during the past five years of £1,724,126. From this sum must be deducted £150,000—two installments of £75,000 each toward paying off the £1,000,000 voted under act 53 Vic., No. 24, for reconstruction and improvement of rolling stock and permanent way, which fell due up to December 31 last; after deducting this amount, the treasury will still have received £1,574,126 increased net earnings during the past five years.

Working expenses.—The total amount under this head was £1,738,516—equal to 59.3 per cent of the revenue, showing a decrease of 7.3 per cent since 1886. It is pleasing to notice by the quarterly report of the commissioners to December 31, 1893, that this item has been further decreased to 50.8 per cent. Of the total working expenditure £474,142 was for maintenance of way works and stations, £557,574 for locomotive power, £129,188 for carriages and wagons, £503,137 for traffic expenses, £70,885 for general expenses, £1,701 for compensation (passengers), and £1,889 (goods).

Traffic.—During the year, 12,619,945 ordinary and 243,796 season tickets were issued, which, with the revenue derived from the carriage of horses, parcels, carriages, mails, etc., and from miscellaneous services, yielded £1,092,338, equal to £471.6 per mile open and 71.27*d.* per train mile. In connection with the goods traffic there were carried: General merchandise, 1,171,815 tons; wool, 107,491 tons; live stock, 150,115 tons; minerals (coal and coke), 2,228,577 tons; other than coal, 115,845 tons; yielding a revenue (inclusive of that received from miscellaneous services) of £1,811,180, equal to £770 per mile open and 113.59*d.* per train mile. The total revenue from all traffic was 23.6*d.* per train mile, as compared with 89.25*d.* in the preceding year. The total number of passenger journeys was 19,932,703. On all suburban lines the number of passenger journeys was 16,813,677, the number of miles traveled being 95,917,445; average mileage per passenger, 5.7; amount received from passengers, £250,379; and the average receipts per mile per passenger, 0.63*d.*

Rolling stock.—The more powerful class of engines introduced (both English and American) is materially assisting the working; practically, all the heavy express and mail trains are now worked by one engine instead of two, and the loads of the goods trains have been increased in many instances. The carriage stock is in good order, and the wagon stock has been greatly improved. Of 367 locomotives passed through the shops during the year, 211 were repaired at Eveleigh, 39 at Newcastle, and 117 at smaller depots. Of these 259 received heavy repairs and thorough overhaul, and 108 had general repairs of a lighter character. There were 989 passenger vehicles dealt with at Eveleigh and 293 at Newcastle; 3,376 merchandise vehicles received heavy repairs and thorough overhaul, and 7,436 wagons and vans in all passed through Eveleigh and Newcastle shops during the year. In addition to these, 45 vehicles were reconstructed in the Eveleigh shops at a cost of £5,075 and charged to working expenses; 1 new "D" wagon, 6 open "bogie" wagons, and 4 heavy goods brakes were also constructed and charged to capital account. The total engine miles run were 10,154,648.

Tramways.—There were 49 miles of tramways open on June 30, 1893, constructed and equipped at a cost of £1,118,471. The sum of £1,032,648 has been raised by the issue of debentures and other stock to the amount of £39,464, and the balance has been provided out of the general funds of the colony. The gross revenue was £295,367, the working expenses £233,808, and the net earnings £61,559. The net profit earned upon the capital invested was 5.51 per cent.

QUEENSLAND.

[Compiled from the report of the railway commissioners.]

The Queensland railway returns for the year ending June 30, 1893, are not so satisfactory as those of the preceding year, and plainly show that the hard times have had great effect on the traffic. Had it not been for the disastrous floods in the beginning of 1893, and the consequently increased working expenditure on some of the lines, owing to the failure of the Albert and Antigua bridges, the returns would have showed very much better.

The length of lines open for traffic was 2,373 miles, as against 2,320 miles on June 30, 1892. During the year the following lines were opened: Southern division, N. Bundaberg to Rosedale, 33 miles; Biggenden to Degilbo, 3 miles; Cairns Railway (Myola to Biboohra), 17 miles; total, 53 miles.

New lines.—No contracts for construction of new lines were entered into during the year, and the only contract uncompleted was that for the third section of the Cairns Railway, which was practically finished, but not opened, during the year. For the first time since railway construction was initiated in the colony, there is now an absolute cessation of operations in that direction. During the year 16½ miles were relaid with 60-pound rails in place of 41¼-pound rails, the expense being £21,638, of which £17,353 was charged to revenue and the balance to loan account.

Traffic.—The total number of passengers carried during the year (exclusive of season-ticket holders) was 2,120,163, and goods and minerals amounted to 720,587 tons. The earnings from the coaching traffic realized £318,730, and from goods, £703,947, or a total of £1,022,677. The number of train miles run was 3,755,655, as against 3,966,120 during the previous year. There was a large falling off in the number of passengers carried during the year, due to the prevailing depression. Many people now travel only when compelled to do so.

The decrease in receipts was £29,246 and in the number of tickets issued 250,056. The goods and live-stock traffic showed a decrease, as compared with the previous year, of £390, and it is particularly gratifying to find that, although the traffic on the northern and southern trunk lines has seriously decreased, a number of the shorter lines show signs of increased vitality.

Capital cost.—The capital account has not increased, and remains at £18,884,152, as on June 30, 1891, of which the sum of £16,951,043 18*s.* has been expended as follows: Southern division, £9,718,356 12*s.* 5*d.*; central division, £2,603,486 19*s.* 1*d.*; northern division, £3,120,973 6*s.*; general, £1,189,638 18*s.* 7*d.*; special suspense account, £407 15*s.* 8*d.*; and stores suspense account, £218,180 16*s.* 3*d.* The unexpended balance was, therefore, £2,033,108 2*s.* In the previous year the account stood: Expended on lines open for traffic, £16,046,857 9*d.*, or a total expenditure for capital account of £16,700,981 9*s.* 1*d.*, while last year £16,230,490 represents the capital expended on open lines, and, as before stated, £16,851,043 total capital expenditure. The percentage of net revenue to capital expended on opened lines was £2 11*s.* 6*d.* in 1891–'92, while last year it stood at £2 7*s.* 3*d.* The percentage of net revenue to capital expended on open lines and those under construction and projected was £2 9*s.* 6*d.* in the previous year and £2 5*s.* 7*d.* during the last year.

Working expenses.—The total amount expended on the working of the railways for the year reached £638,888 17*s.*, or a decrease on the previous year of £613 4*s.* 3*d.* The commissioners expressed special regret that it was not found possible to decrease the working expenditure in proportion to the falling off of the revenue; but, in view of the causes referred to above, such could hardly have been expected. The expenses per train mile during the previous year were 3*s.* 2¾*d.*, while last year they were increased to 3*s.* 4¾*d.* The expenditure from loans during the year was £150,063 8*s.* 11*d.*, apportioned as follows: The southern division, £57,305 5*s.* 3*d.*; central division, £9,962 10*s.* 10*d.*; northern division, £94,425 9*s.* 5*d.*; and general votes, £11,530 16*s.* The average loan expenditure per annum for the last three years is estimated at £908,484 and the total cost of maintenance for the last year £274,472. The total average number of men employed in maintenance was 1,860.35, or

nearly 79 per mile, as compared with 75 per mile for the previous year; while the average cost of maintenance per mile (exclusive of relaying) was £102 3*s.* 5*d.*, against £106 7*s.* 8*d.* for the previous twelve months. The cost for maintaining 2,486 miles of single line during the year was £102 per mile; the average annual cost for the five years ending 1888 was £142 per mile, exclusive of relaying. This item is very satisfactory.

Revenue and expenditure.—The gross revenue for the year amounted to £1,022,676 19*s.* 11*d.*, of which £986,174 5*s.* 7*d.* was paying traffic and £36,502 14*s.* 4*d.* nonpaying traffic. The net revenue, after paying expenses of working, was £363,788 2*s.* 11*d.*

The percentage of working expenses to revenue showed 62.47 per cent, as against 60.76 per cent the previous year, and the total traffic receipts showed a decrease of half a penny net, as compared with the previous twelve months of £29,246. The earnings per train mile were, gross, 5*s.* 5¼*d.*, and, net, 2*s.* 0½*d.*, or an increase of 1½*d.* gross and a decrease of half a penny net as compared with the previous year.

In like comparisons, the expenses show an increase of 2*d.* per train mile. The earnings per average mile open were £432 19*s.* 5*d.* last year and £458 5*d.* the previous year, and the expenditure was £272 9*s.* 9*d.* and £278 5*s.* 9*d.*, respectively. The expenditure on surveys amounted to £745 17*s.* 9*d.*, equal to 0.49 per cent of the capital expenditure for the year. The work was confined to the employment of three officers temporarily in obtaining the flood levels on the lines affected by the heavy rains in February, 1893.

Rolling stock.—The locomotive stock has been increased from 255 to 261 during the year on all lines (leaving 27 still to be delivered in connection with current contracts, viz, 8 passenger engines, 10 mixed, and 9 goods engines). Of these, 54 are shunting motors (tank and goods) and 207 passenger and mixed-traffic engines. The additions during the year were 4 goods and 2 mixed-traffic engines. Of the 27 under contract, 10 mixed-traffic engines may be altered for the others if found necessary. The carriage stock was increased during the year by 4, making a total of 322 for all lines. The goods stock has been increased by the addition of 34, but, as 14 were lost in the flood, the net increase is only 20. The total is now 3,738 wagons of various styles, all of which are in fair order and condition.

SOUTH AUSTRALIA.

[Compiled from the report of the railway commissioners.]

The results of the twelve months' working of the South Australian railways do not compare favorably with the previous highly satisfactory year, owing to various causes, the principal of which are stated in the report as follows: The Broken Hill strike, the depression, the monetary difficulties caused by the stoppage of a number of the banks, and the loss of one day's revenue, owing to leap year falling in 1892.

Length of line.—The mileage open on June 30 last was 1,664 miles, of which 1,173 miles were on the 3-foot-6-inch gauge and 491 on the 5-foot-3-inch gauge. The average miles open are the same for both years, namely, 1,662½. The number of miles of line opened per 1,000 of the population is about 4.97, as against 5.11 for the preceding year, while the population per mile of line opened is estimated at 201, as compared with 196 in 1891–'92.

New lines.—The construction of the Blyth and Gladstone Railway, with a branch to Snowtown, authorized last session, was commenced in June, 1892, and is being carried out by the department instead of by contract. The total length is 57 miles 40 chains, and the probable date of completion is June, 1894. The only other addition to the railway mileage during the year was brought about by the purchase of the Grange to Woodeville line—3 miles 24 chains.

Capital cost.—Up to the end of the financial year the total amount expended on railways, tramways, and various wharves and jetties was £11,936,256. Of this £11,474,394 was raised by loans, and the balance—£461,862—was expended out of the general revenue of the colony. The net profit for the year amounts to £366,937, or 3.07 per cent on the capital cost. The amount of interest payable to the bondholders for the year on the loans raised and not redeemed was £449,054, or at the rate of £4 1*s.* 2*d.* per cent per annum. As the net

revenue from the work amounted to £366,937, the balance was, for the last time since 1889, insufficient to pay the interest upon the capital expended by £82,117. The amount added to the capital expenditure during the year on lines open and under construction was £288,345, of which £7,610 was taken from the general revenue and the balance of £280,735 provided from loan. The capital cost per mile opened and completed is this year £7,174, as against £7,051 last year. The total amount of interest paid and accrued on the bonded debt to June 30 was £6,305,041 and the total of bonds redeemed £708,900.

Revenue.—The total revenue for the year's work, exclusive of the Palmerston and Pine Creek section, which is dealt with separately, was £1,007,059, as against £1,213,290 last year, or a decrease of £206,213. The receipts per mile open were £606, as compared with £730 during the previous year; per train mile, 65.85*d.*, as against 69.69*d.* Of the total revenue, coaching traffic contributed £311,034, equal to 30.88 per cent of the total, while goods traffic returned £696,025, equal to 69.12 per cent of the total. The earnings per mile of line and per train mile were, respectively, £210 and 52.55*d.* from coaching and £520 and 80.29*d.* from goods. These returns show a decrease in both branches as compared with the previous year, when the figures were £349,421 for traffic and £863,869 for goods, equal to 28.72 and 71.23 per cent of total, respectively.

Working expenses.—The working expenses for the year were 63.56 per cent of the revenue, or 9.74 per cent greater than in 1891–'92. The total amount of working expenses was £640,122, as against £652,941 the previous year. Maintenance proper is set down at £159,389; locomotive and horse power at £256,370; and traffic, repairs, and general charges at £224,362. This gives a result of £385 per mile open, as compared with £393 during the previous year; per train mile, 41.86*d.*, as against 37.5*d.*

Traffic.—The total number of miles run during the year was 3,670,390, a decrease, compared with the previous year, of 507,896 miles, while the following were the decreases in tonnage, as compared with the previous year: General goods and live stock, 133,956 tons; in minerals, 28,302 tons; in wool, 3,937 tons. In grain there was an increase of 31,878 tons. The revenue derived from the coaching department is given as £299,128; from merchandise and live stock at £660,371; and miscellaneous at £47,560, making a total of £1,007,059. The passenger traffic yielded £234,630, as against £269,797 in the former year, the numbers of passengers being 5,547,053 and 5,744,487, respectively. The arrangement for working the Silverton Tramway was terminated by notice from the company on June 30. Since that date the company has worked its own traffic between Cockburn and Broken Hill, and the terms of a new agreement for the use and interchange of rolling stock and the conduct of through traffic has been settled. In connection with the Barrier traffic, the maintenance of which is of such importance to South Australia, it may be stated that, from the best sources of information available, it is certain that the volume of traffic may, under certain conditions, be materially increased. This, however, would depend largely upon two questions, viz, a satisfactory solution of the sulphide problem as regards low-grade ores and the rates for transit.

Rolling stock.—The number of locomotives in use on all lines during the year was 258, an increase of 17 on the previous year; of coaching vehicles, there were 342, as compared with 331; and of goods and live-stock vehicles, 6,180, as compared with 5,691. Of the 17 additional locomotives, 16 were received from the builders under contract, thus completing the contract made in 1888 for 52 locomotives.

With regard to the foregoing details, it must be borne in mind that the Palmerston and Pine Creek line, which is always considered apart from the rest, is not taken into account. This isolated piece of railway, away up on the northern coast, yielded a revenue for the year of £15,668. The working expenses for the same period amounted to £11,714, leaving the balance of £3,963 toward the payment of the interest charges. The number of passengers who traveled was 6,169, and 2,177 tons of goods and live stock were carried. The receipts were £108 and the working expenses £80 per average mile opened, while the number of miles run was 30,841. The traffic improved slightly during the year, and the increase in

working expenses was so slight that the net profit on the working showed an improvement of £408. Efforts are also being made to cultivate cattle trade with the east.

The Palmerston line is a section of the Transcontinental line, which will, doubtless, one day cross Australia from north to south, and of which about one-half has already been constructed.

VICTORIA.

[Compiled from the report of the railway commissioners.]

The Victorian railways experienced the full effects of the tide of trade depression and commercial stagnation. The commissioners consequently content themselves with presenting their report of the year's results with comment. As a result of the administrative reforms they have inaugurated or established to preserve the efficiency of the service upon a most stringently economical basis, it is satisfactory to find that the deficiency in meeting interest charges for the year is decreased by £85,777.

The length of line open for traffic was 2,975 miles, made up as follows: Northern system, 836¼ miles; western system, 1,018½ miles; northwestern system, 603¾ miles; eastern system, 500 miles; south suburban, 16½ miles. During the year, 55 miles of new lines were opened for public traffic in the different systems, and the Dookie to Katamatite tramway was taken over by the department.

Capital cost.—The total expenditure upon railways open or in the course of construction was £37,462,372. The amount of the railway indebtedness for borrowed capital was, on June 30, £35,806,977. The debenture capital account at the close of the financial year showed an increase of £1,024,028 4*s.* 3*d.*, being the proceeds of Victorian Government stock act No. 1015 and the amount allocated to railways under treasury bonds act 1233. The interest payable and accruing on railway loans for the year was £1,422,426 4*s.* 5*d.*, and the amount paid by the treasury for expenses in payment of interest was £24,498 13*s.* 6*d.*, making the total interest liability for the year £1,446,924 17*s.* 11*d.* The capital upon which interest is payable increased from £20,664,266 in 1883 to £35,806,977 in 1893.

Railway stock.—Two hundred and nine engines, 391 carriages, and 3,151 wagons were thoroughly renovated, and 1 first and 1 second class 70-foot corridor cars for use on main lines, 4 second-class bogie cars, 3 composite bogie cars, 25 "II" and 100 "I" trucks, and 1 light locomotive have been constructed in the workshops. During the year, also, 33 engines and 60 louvered wagons were placed on the line by contractors, and 17 engines and 15 louvered wagons remained to be delivered. All new stock was fitted with the Westinghouse continuous automatic brake. A total of 13,835,721 engine miles were run during the year without any serious casualty, equal to an average of 27,326 miles per engine, which is much in excess of the average of railways in England. The total expenses of operating the locomotive department shows a decrease of 0.33*d.* per engine mile, equivalent to a saving in money of £87,120. The number of passenger engines in use was 246 and goods engines 253, while passenger vehicles to the number of 1,107 were used and goods vehicles, etc., to the number of 8,998.

Working expenses.—The total expenditure for the year, on account of maintenance, was £327,958 2*s.* 2*d.* for an average of 297 miles of double and 2,636 miles of single line, or a total average length of 2,933 miles of line, as against £412,336 9*s.* 4*d.* for an average of 291¾ miles of double and 2,537½ miles of single line, or a total average length of 2,829 miles of line maintained the previous year, being at the rate of £111 16*s.* 4*d.*, as compared with £145 14*s.* 10*d.* the previous year. The average cost of maintenance per train mile was 7.31*d.*, as against 8.38*d.* in 1891–'92. The locomotive charges for the year amounted to £607,702 1*s.* 4*d.*, or a cost of 13.54*d.* per train mile; carriages and wagons represented an expenditure of £127,581 2*s.* 10*d.*; compensation, £6,432 19*s.* 11*d.*; traffic charges, £668,716 14*s.* 2*d.*; and general charges, £111,898 14*s.* 2*d.*

Traffic.—The number of passengers conveyed during the year was 58,440,075, as against 69,546,921, being a decrease of 11,101,846. The tonnage of goods and live stock was 3,386,-

888, as against 3,654,967, or a decrease of 268,079; while the train miles amounted to 10,775,134, as against 11,807,677, a decrease of 1,032,543. The revenue from the passenger traffic yielded £1,260,879 7*s.* 1*d.*; parcels, etc., £91,859 1*s.* 8*d.*; horses, carriages, and dogs, £17,409 4*s.* 5*d.*; mails, £63,037 6*d.*; rents, £54,716 5*s.* 11*d.*; miscellaneous, £14,965 16*s.* 8*d.*; live stock, £138,945 9*s.* 4*d.*; and goods, £1,278,135 8*s.* 5*d.*

Revenue and expenditure.—The revenue derived from the working of the lines during the year was £2,925,947 14*s.* 10*d.*, while expenses amounted to £1,850,290 14*s.* 7*d.*, equal to 63.23 per cent, leaving a balance of £1,075,656 19*s.* 5*d.* The deficiency in meeting the interest charges for the year is £344,267 18*s.* 6*d.* The decrease in the revenue amounted to £169,174 5*s.* 10*d.*, and the net decrease in expenditure to £287,848 4*s.* 8*d.* The net revenue gives 2.87 per cent on the total expended capital and 3.12 per cent on the total expended debenture capital. These returns are very satisfactory, in view of the heavy falling off in the revenue during the past two years. The gross receipts per average mile open were £998 (a decrease of £96), and 5*s.* 5.17*d.* per train mile (an increase of 2.26*d.*), while the percentage of expenses to revenue was 63.23 per cent (a reduction of 5.85 per cent).

New lines.—Under the provisions of act No. 1250, which came into operation on January 1, 1892, the construction of railways has been transferred to the board of land and works. Many of the new works authorized were postponed as not urgently necessary, and a board of finance and works, consisting of heads of branches and other responsible officers, was established for the careful review of all contracts before confirmation, to insure the strictest economy in all expenditure upon works and material. The only line under act 821 remaining uncompleted was the Frankston Cemetery line. The two railways in the Mallee district, in the northwest of the colony, viz, Donald to Birchip (32¼ miles) and Warracknabeal to Beulah (22 miles), were opened during the year. The lines were constructed at a cost per mile very much lower than any railways previously made in the colony. The Beulah to Hopetoun line (16 miles), which was commenced as a private undertaking, was, in June, 1893, taken over and will be completed by the board of land and works. The Korunburra to Coal Creek line (three-fourths of a mile) was opened in October, 1892.

Accident fund.—This fund, established under act No. 1250, provides for the receipt at the rate of 10*s.* for every £100 of fares received for the conveyance of passengers and charges for live stock, goods, and parcels to the credit of the employés. The amount so received to June 30, 1893, was £14,281 6*s.* 6*d.*, making, with balance from previous year, £20,862 2*s.* 5*d.* The compensation claims paid amounted to £5,608 11*s.* 1*d.*, leaving a credit balance of £15,253 11*s.* 4*d.*

WESTERN AUSTRALIA.

[Compiled from information supplied by the commissioner of railways.]

The railway service of Western Australia stands in a unique position as compared with the other colonies. For many years the development of this vast tract of country was considerably retarded by the discovery of gold in Victoria and elsewhere, which caused quite an exodus of settlers and at one time threatened to depopulate the colony altogether. Fortunately, however, her own gold fields and the possibilities of her vast resources proved, in some sort, a counter attraction, and her population has steadily increased ever since, more especially since the inauguration of responsible government. The information obtainable with regard to her railways is of a somewhat meager description; but the year under review shows a decided improvement on previous ones, inasmuch as it is the first within ten years in which the expenditure has come within the revenue. During the ten years 1883–'92, the total revenue was £420,741, while the expenditure was £506,509.

Length of line.—There are now in full working order, in this colony, 313 miles of Government railways and 453 miles of private lines, or, in all, 768 miles open for traffic. The Eastern Railway (Government) extends from Freemantle, the chief port of the colony, through Perth to Guildford, York, and Beverley, with branch lines from Spencer's Brook to Northern and Clackline to Newcastle, and to Perth race course. The Northern Railway (Government)

extends from Geraldton to Northampton, a length of 34 miles, and has a branch line to Walkaway 17 miles in length. There is also a third line from Bunbury to Timber Ranges 15 miles in length. The southwestern line, only recently opened, extends from Perth to Bunbury. An English company—the West Australian Land Company (limited)—constructed a line from Albany to Beverley, a distance of 243 miles, for which a special grant of 12,000 acres of land for every mile of line constructed was made by the Government. The line was opened for traffic in June, 1889. A special concession was also made to Messrs. C. & E. Miller to construct a line on the land-grant system from Albany to Torbay, a distance of 12 miles. This is now open for traffic. Under a special timber concession, the Jarrahdale Timber Company completed a line from Rockingham to its timber mills, a distance of over 20 miles, and from thence inland. A line and tramway 8½ miles in length also connects Cossack and Roebourne. With the exception of this line, which is built to the 2-foot gauge, and worked by horse power, the whole of the Western Australian railways are constructed upon the 3-foot-6-inch gauge. There are several private tramways belonging to timber companies in the south and southwestern parts of the colony, which may eventually become a portion of the present railway service.

New lines.—The SouthWestern Railway, from Perth to Bunbury (115 miles), was opened about the middle of 1893. It connects a number of important centers of population with the railway system, and, by providing facilities for rapid transit with both seacoast and metropolis, should do much to stimulate industry in the districts passed through, which are mainly agricultural. There are two Government lines under construction, of a total length of 181 miles, namely, Poyanup to Minninup (11 miles), and the Eastern Railway to Yilgarn gold fields (170 miles). This field is among the newer discoveries of Western Australia, but it has already attracted great attention to itself by the phenomenal finds of the precious metals which have been from time to time announced. The prospect of still further and richer discoveries being made is regarded as certain by many who are looked upon as experts, and it is therefore safe to prophesy the rapid increase of settlement in this particular district, a result to which the railway will doubtless largely contribute. This latter will develop a very rich mineral district, a result to which the railway will also largely contribute. The Midland Railway was commenced and a considerable portion completed by a company on the "land-grant" system, but has latterly been taken over by the Governnment, who will complete it. It joins the Eastern Railway near Guildford, and runs northerly to Gingin and Walkaway, where it meets the northern line—Geraldton to Walkaway. Up to February, 1893, 129 miles of this line out of a total of 276 miles had been opened for traffic. When completed direct communication between Geraldton and Perth will be effected. Mr. E. Kean's special concession in 1891 for the construction of 19½ miles from Guildford along the Darling Range for the purpose of opening up the timber industry is now held by the Canning Timber Company (limited).

The following proposed Government lines are now being surveyed and will shortly be commenced: Boyanup to Busselton (27 miles) and Geraldton to Mullewa (57 miles), making a total of 84 miles under survey.

Capital cost.—The capital cost of the Government railways of Western Australia is computed up to the end of December, 1892, at £1,359,651. Of this amount £231,413 was expended during the year 1893. The rate of interest paid varies between 4 and 4½ per cent.

Revenue.—The receipts derived from the Government lines during 1892 are estimated at £94,201, as compared with £64,034 the previous year, showing an increase of £30,167. The excess of revenue over expenditure amounted to £3,547, as against £2,043 deficit the previous year. The total excess of expenditure over revenue for the past ten years was £85,768.

Working expenses.—The expenditure on the Government lines for the year amounted to £90,654, as against £66,277 during the previous twelve months, or an increase of £24,377. In 1881 the expenditure was £12,215; in 1882 it increased to £15,071, and up to 1887 a

steady increase continued. The figures are: 1883, £15,632; 1884, £20,526; 1885, £30,926; 1886, £44,581; and 1887, £57,183. The following year it dropped to £54,521, but it jumped up to £63,939 in 1889.

Traffic.—The number of train miles run during the year 1892 was 406,450; the number of passengers carried, 456,631, as against 277,997 the previous year; and the tonnage of goods, 135,890 tons, as against 96,507 tons—an exceedingly satisfactory improvement in both. The contribution to revenue from these sources exhibits the satisfactory increase of £6,843 on passenger and £10,897 upon goods traffic over 1891.

Rolling stock.—The rolling stock on the Government lines is confined to 31 locomotives, 41 passenger carriages, 394 goods wagons, and 228 trucks, vans, and other vehicles.

The foregoing was extracted from the "Year Book of Australia, 1893."

At present the number of miles of railway under construction by the Government of the colony of Victoria is less than at any time during the last twenty or twenty-five years.

The lines are: Natimuck to Goroke, Boort to Quambutook, Dimboola to Jeparit, and Wycheproof to Kaneira. The number of men directly employed on them is about 600, including some 400 engaged in splitting timber for sleepers. There are in all about 1,000 men employed in consequence of these works.

Taking the average earnings at $1.25 per day, the Government is now spending on labor for railway construction $1,250 per day, or at the rate of $390,250 a year; and unless some new works are undertaken the number of men employed must soon be considerably reduced, as the three lines first mentioned will be completed within a month's time.

There are 150 men employed on the Wycheproof to Kaneira line, which is only practically begun and will take several months to complete; but the number of men required at any time on that line will not be large.

The railway problem is one that is now being largely discussed here, and one that has given rise to much dissatisfaction, which will be seen by the following editorial from the Argus (newspaper):

No discussion is awaited with more interest than the promised Parliamentary debate on railway rates and railway management. "The dissatisfaction with railway charges is general" is the tale told from day to day by one man after another, and neither ministers nor members are likely to overlook the fact of this deep-seated discontent. Of course, there may be grumbling without cause and dissatisfaction without justification, but in the present instance we maintain that the complaints are well founded; that the high freight and high passenger rate policy introduced by Messrs. Shiels and Wheeler is radically wrong and will have to be abandoned, as well, also, as the high-tariff rates sanctioned by those mistaken, or rather those grievously misled, gentlemen. Mr. Richardson, when he assumed office, showed an inclination to follow in the footsteps of his predecessors, and still occasionally speaks as though he were in the high-freight camp; but it is affirmed he is succumbing to the inexorable logic of facts. The event will show.

It is essential, of course, that Parliament should have a fair grasp of the railway problem, and hence our recurrence to the subject. It is a subject, also, that affects every traveler, from the clerk who journeys daily to and from his suburban home to the settler who is hesitating as to whether he should or should not abandon cultivation. Apparently, even first principles are in dispute. Thus the high-freight, high-tariff party ridicule the idea that freights are affected by the value of the goods carried. The drop in agricultural produce, it is assumed, has nothing to do with the railway department, which is entitled to make the same charge

whether wheat is 5*s.* or 2*s.* per bushel. Such is not the commercial principle applied in other countries. The subject is one that has been fully thrashed out in England, America, and the Continent, and the decision that the ad valorem principle must to some extent be recognized is universal. The principle is not one to be pushed to any absurd conclusion. It should not be burlesqued, but neither ought it to be ignored. The Interstate Railway Commission—the great tribunal of the United States—reported in 1888 as follows:

"The public interest is best served when the rates are so apportioned as to encourage the largest practicable exchange of products between different sections of our country and with foreign countries, and this can only be done by making value an important consideration."

According to this authority, which is, perhaps, the most practical and most valuable authority in the world, value is "an important consideration" in fixing charges, or, in other words, when values fall, charges may reasonably fall also, whenever it is possible to reduce them.

So the House of Commons committee in 1882 justified a low rate for the carriage of fish from Wick and the other Scotch ports, on the ground that the fish was of such low value that it could not pay high rates. The case is quoted also of a reduction made to iron mines when their ore fell from a 50 per cent to a 40 per cent grade; but, as a matter of business, a concession, when the circumstances of the customer vary, may not only be defensible but may be essential.

If the American railway tribunal is right, if the House of Commons committee is right, and if the practice of the English companies is right, then our agriculturists are entitled to a substantial reduction on their freights, for the simple reason that their produce has fallen in value. Just as everybody who supplies the producer endeavors "to meet the times," so must the people who carry for the farmers make a similar effort. Such is the common-sense view of the situation. Mr. Richardson is quite right in recognizing that, as regards frozen meat, he must charge the industry no more than it can bear. He was radically wrong in not applying the same rule to the wheat-growers when the season opened with a terrible drop in prices.

A word may be required as to American rates. No doubt we in Australia will never be able to obtain rates as low as those that prevail in the United States, our conditions being radically different, but the extraordinary thing is that the assertion should be persisted in that our Victorian rates are lower than those that are charged in America. The force of mendacity could scarcely further go. In one sense, there are no American rates to quote. There are a thousand and one railways in America, and each line has its own schedule, and any fancy list can be prepared. The inquirer can only deal with averages, and, taking averages, there is no doubt possible. The current number of the Fortnightly Review is tolerably accessible to most people, and the inquirer has but to open the article by Mr. J. S. Jeans on the railway subject, and he will find the allegation that freights on the United States lines are the lowest in the world. Mr. Jeans adds:

"There is no need for any controversy on this point. The fact is set out in the clearest possible light in the published accounts of the principal American railways. The Pennsylvania system may be taken as a typical case. Over a large portion of this vast system—the largest and most important on the face of the globe under one designation and control—the average ton-mile rate in 1890 was less than a farthing per ton per mile. The average ton-mile rate for the whole of the system was three-tenths of a penny."

That is to say, that throughout this great organization, the average for goods of all classes, first-class goods, second-class, and so on, was just over a farthing per ton per mile, while, in Victoria, the average for all classes would be more like 3*d.* per ton per mile; and it is obvious that wheat and similar low-priced goods may be carried over the Pennsylvania lines at rates which appear to us to be nominal. Mr. Jeans, Mr. Acworth, Mr. Grierson, and other writers who put these facts before the world, and who are everywhere accepted as men of honor and as experts of ability, are broadly set down here as so many deliberate propounders of falsehoods. And all this to suit the contention of men who plunged into a particular course, partly

in ignorance and partly because they were carried away by partisan feeling. The notorious fact is that we are not, so to speak, "within cooey" of the American rates, and we must not expect even terms, because distances and quantities have to be taken into account. Still, when the average American rate for wheat is under one-fourth of a penny per ton per mile and the average Victorian rate is 1*d.* per ton and over, the handicap appears to be excessive.

It never was a successful policy to send up freights and fares in a falling market, and there has been no success in this Victorian instance, but rather the signal failure which usually accompanies this short-sighted policy. What are the actual facts of the case? Why, that, instead of the increased receipts which were confidently expected, the responsible railway authorities will be £400,000 short of the estimates they so positively submitted for the current year. No condemnation could be more emphatic.

DANIEL W. MARATTA,
Consul-General.

MELBOURNE, *May 10, 1894.*

HOURS OF LABOR FOR WOMEN AND CHILDREN.

The legal duration of a day's labor is the same (12 hours) for all classes of workers (children, old people, women, and male adults) in Belgium; in Holland and Switzerland, it is 11 hours.

Night work has not been considered as such in the following tables, in those cases where, for example, work commences one hour before and terminates one hour after the legal limit of a day's work, for the purpose of permitting in certain establishments two relays of workers.

The obligation of one day's rest per week is very nearly general in all the countries for children and women, and has been the subject of special legislation in France and England, where it applies to the entire population.

Legal restrictions upon the duration of woman's daily work in the different countries of Europe.

Countries.	Age at which a female is considered a woman by these laws.	Maximum duration of a day's actual work.	Minimum duration of recess.	Night work.	Duration of the interdiction of work.
	Years.	*Hours.*	*Hours.*		
Berlin conference...	16	11	0½	Forbidden.	Four weeks after childbirth.
France	18	11	.....	.....do.....	
Belgium.....	*16	12	1½	.....do.....	Do.
Holland.....	16	11	1	.....do.....	Do.
Portugal.....	.....	.....	1	.....	Do.
Switzerland.....	18	11	1½	Forbidden.	Two weeks before and four weeks after childbirth.
Germany.....	16	†11	1½	.....do.....	Four weeks after childbirth.
Austria.....	16	11	1½	.....	Do.
Hungary.....	.....	10	.....	.....	Do.
Sweden.....	18	.....	.....		
Norway.....	18	.....	.....	Forbidden.	Six weeks after childbirth, or four weeks after with a medical certificate.
Russia.....	17	.....	.....	.....do.....	
England.....	18	10 to 10½	2 to 2½	.....do.....	

*And protected by the law until 21 only. †And 10 hours Saturday.

Legal restrictions upon the labor of minors in the different countries of Europe.

Countries.	Minimum age of admission.	Ages subjected to different restrictions.	Maximum daily duration of labor.	Minimum duration of recess.	Work at night.
		Years.	*Hours.*	*Hours.*	
Conference of Berlin	12, and 10 years in the southern states.	12 to 14	6	0½	Forbidden in principle.
		14 to 16	10	1½	
		16 to 18	(*)	0½	
France	13 and (exceptionally) 12 years.	12 to 13	10	1	Forbidden.
		13 to 16	10	1	8 hours in 24 are tolerated.
		16 to 18	11	1	10 hours in 24 and 54 hours per week are permitted.
Belgium	12 years	12 to 14	12	1½	Forbidden.
		14 to 16	12	1½	Permitted exceptionally.
Holland	12 years	12 to 14	11	1	Forbidden.
		14 to 16	11	1	
Italy	9 years	9 to 12	8	1	Do.
		12 to 15	.....	1	Maximum duration of 6 hours is permitted.
Spain:					
Boys	10 years	10 to 13	5	.....	Forbidden in the factories and shops where machinery is employed.
		13 to 15	8	.....	
Girls	do.	10 to 14	5	.....	
		14 to 17	8	.....	
Portugal	12 and (exceptionally) 10 years.	10 to 12	6	1	Forbidden.
		12 to 16	10	1	Permitted exceptionally for boys only.
Switzerland	14 years	14 to 16	11	1	Forbidden with exceptions.
		16 to 18	11	1	
Germany	13 years	13 to 14	(†)	1½	Forbidden.
		14 to 16	(‡)	1½	Permitted occasionally.
Austria	12 years	12 to 14	8	1½	Forbidden.
		14 to 16	11	1½	Subject to regulation.
Hungary	12 and (occasionally) 10 years.	10 to 14	8	.....	Forbidden.
		14 to 16	10	.....	Permitted occasionally.
Denmark	10 years	10 to 14	6	0½	Forbidden.
		14 to 18	10	2	
Sweden	12 years	12 to 14	6	0½	Do.
		14 to 18	10	2	
Norway	12 years	12 to 14	6½	0½	Do.
		14 to 18	10	2	
Russia	12 years	12 to 15	(‖)	(‖)	Forbidden, except in glass manufactories 6 hours every other night.
		15 to 17	.....	.....	Permitted occasionally.
England	10 years	10 to 14	(¶)	(**)	Forbidden.
		14 to 18	10 to 10½	2 to 2½	

*Not regulated.
†6 hours and exceptionally 10 hours.
‡10 hours in principle.
‖6 hours consecutively and 9 hours in certain cases.
‖1 hour in the second case.
¶6 hours, or 10 hours every other day.
**Half hour in the first instance and 2 hours in the second.

STEPHEN H. ANGELL,
Commercial Agent.

ROUBAIX, *May 10, 1894.*

LABOR LAWS OF BELGIUM.

In these times of labor troubles, it may be interesting to describe, in outline, what is being done in Belgium to benefit the laboring classes.

The Belgian Government has been for a long time devoting its attention to these labor questions. In 1886, as a result of the strikes in the Charleroi district—strikes that were characterized by grave excesses—the Government instituted a labor commission, whose mission it was to make a searching inquiry into the condition of labor in Belgium, and to propose measures of amelioration. This commission, composed of the most distinguished economists of the country, terminated its work at the end of two years, and the measures proposed by it were the origin of the following series of laws and institutions:

Parliament voted the organization of the Council of Labor and Industry, which sits in Brussels, with various subcommittees in the principal industrial centers of Belgium. This Council, succeeding the Commission of Labor, and with its members chosen for their competency to consider labor questions, examines and studies the measures that the Government proposes to the legislature for enactment into law. It also debates the questions resulting from litigation, and seeks the means of appeasing the conflicts between proprietors and laborers. The action of these Councils has been very remarkable, and, by reason of their intervention, many strikes have been prevented, and others which have taken place have been quickly ended.

There has also been organized in Belgium a national society for the assistance of workingmen who have become victims of the accidents of labor. To the funds of this society the Government has, from time to time, contributed. Its management and operations are in the hands of the officers of the society, selected in the different provinces from substantial citizens engaged in manufacturing, merchandising, and the various departments of labor. This organization has not only been beneficial to the individuals assisted, but its tendency has been to produce a better state of feeling between employers and employés.

The Government has also recommended the organization of societies for the construction of workingmen's habitations, and, under its protection, committees for the construction of such habitations have been formed in the principal cities of the Kingdom. These committees do not limit their field of action to the construction of houses alone; they also surround the laborer with a constant solicitude, and formulate addresses to the authorities, tending to the amelioration of the condition of the workingmen of their districts.

The building committee in charge of such houses in the city of Brussels has submitted, for the consideration of the communal authorities, a proposition for creating an insurance fund against enforced idleness, a proposition

which has led to an inquiry that will be referred to at the end of the present report.

Among the principal laws enacted on the subject, I will cite:

(1) The law concerning the labor of women, young men, and children in manufactories and mines. By its provisions the employment of children under the age of 12 is prohibited, and the conditions for the employment of young men under 16 and women under 21 are fully determined.

(2) The law providing that wages are not liable to seizure.

(3) The law determining the conditions governing the payment of workingmen.

No one is allowed to settle labor wages by means of an equivalent in merchandise, food, etc. Such wages can not be paid in a barroom or in any building where beer or liquors are sold.

Notwithstanding these governmental provisions, there yet remains a large number of unemployed or idle persons. These persons have been considered in three classes:

(1) Those who have yielded to the temptations of idleness, drunkenness, and vice; who have no home and no visible means of support, and who are properly termed vagabonds or vagrants. These persons are dealt with by the criminal authorities, and after trial and conviction are sent to Hoogstraeten, a reformatory prison, where they are required to labor during such periods of time and at such kinds of labor as will best effect their reformation. The sentences vary from a confinement of three to six months, and often to a much longer period in case of subsequent convictions for the same offense. The colony of Hoogstraeten is established in the uncultivated and sandy part of the country known as the "Campine." It is governed by an administration of civil employés of the State, assisted, if necessary, by a military force, and comprises a series of workshops of all kinds, in which trades are taught to the inmates. Shops for the manufacture of clothing, shoes, and tools are found there. Those of the detained who have no aptitude for work necessitating some handicraft are utilized in field labor.

(2) Such unemployed laborers as have a trade or profession, who may be termed skilled laborers.

(3) Those who have no profession or trade, and who can do the simpler kinds of work only.

These two classes are frequently reduced to involuntary idleness, owing to the excess of laborers over the demand for them, to financial and commercial crises, to changes of season, and, to some extent, to the want of proper equalization of supply and demand.

The methods of meeting the labor questions arising out of these conditions have been variously treated in the different provinces and municipalities of the Kingdom.

I desire especially to speak of the methods pursued and the means adopted in the city of Brussels to lessen pauperism and to aid the laboring classes.

This city founded a "Bourse du travail," which has been in operation since the 5th of April, 1889, and in which, up to the present day, more

than 35,000 laborers have subscribed their names. The "Bourse du travail" serves as an intermediary between employers and employés; the former find there the means of recruiting their personnel, and the latter the means of entering into the service of the former. It renders a signal service, and thousands of laborers of all callings, manual as well as intellectual, have found employment by reason of their inscription upon the registers of the institution. But the "Bourse du travail" is beneficial to skilled laborers only. Those who can not work, or do not wish to work, are often numerous, and here, as elsewhere, the unemployed consider themselves worthy of public charity or entitled to demand aid from the public authorities. It is by reason of these ideas that are seen to arise those periodical demands under the form of processions, accompanied by claims more or less violent and taken advantage of by agitators and promoters of disorder.

During one of those rigorous winters that strike the laboring classes harder than all others, the city voted a credit of 20,000 francs for their assistance. As soon as it was known that an appropriation had been made by the city, a large number of individuals who had never worked and never will work hastened to have themselves inscribed, in the hope that assistance in money would be distributed to them.

It was then decided to distribute no more money, but to try the unemployed for irregular work, such as sweeping snow, clearing up new quarters of the city, leveling its dump grounds, etc. The experiment demonstrated, however, that these so-called unemployed, obeying an evidently secret and common understanding, after having inscribed themselves en masse, conducted themselves very badly in the performance of the tasks assigned to them, and that the useful effect of the labor furnished by the best of them did not amount to three-fifths of the labor of a good workman, while that of others amounted to one-fifth only.

This failure of the plan of direct municipal aid led to the organization of an institution called the "Maison du travail." In a remote part of the town, the use of an old building, surrounded by a large garden, has been secured. Those who desire to gain support by work of any kind enter the "Maison du travail." Only manual labor of slight importance is required of the men entering this kind of workhouse, such as the preparation of small fagots of kindling wood, which they are allowed to hawk on handcarts about the city, the cultivation of a vegetable garden, the manufacture of wooden shoes, etc. On the other hand, they are provided with lodging, food, and clothing, the excess of the product of their labor serving for the acquisition of small luxuries, such as tobacco and beer.

By this means, a large number of them escape the misery which, without it, would conduct them to Hoogstraeten, where the wretched enter too often into relations which impel them later to the worst excesses.

Therefore, it may be said that in the district of Brussels the condition of the working classes is, if not better, at least as good as in any of the capitals of Europe.

The results of an inquiry to which the city resorted, last February, prove the truth of this opinion.

The committee of the city of Brussels for the construction of workingmen's habitations, to which I have referred in this report, having submitted to the municipal authorities a plan for the organization of an insurance fund against enforced idleness, it was decided to proceed forthwith to a serious inquiry in order to determine the precise causes of enforced idleness, and to examine the means which might be proposed as efficacious remedies for this evil.

This inquiry, which was made under the direction and control of the officers of the "Bourse du travail," demonstrated that at the end of February, 1894, out of a population of 52,243 workingmen, 1,527, or 2.92 per cent, were victims of enforced idleness; that of this number, 914 declared that they were always without employment at such period of the year; and that the idleness of 107 was due to sickness or accidents.

Further, it was seen that less than half of the unemployed were assisted by official charity, and that the remaining 54 per cent who did not have recourse to this special charity were living on their savings or found means of existence in the private charity of the generous citizens of the city.

Moreover, it was made known that the condition of the workingmen's households is generally regular, which is a presumption of order and morality. Unclean lodgings enter only for one-sixth in the total number of lodgings occupied by unemployed workingmen.

I will add that the results of this inquiry have confirmed the accuracy of certain causes to which the misery of many workingmen is ascribed. They are idleness, drunkenness, insufficiency of technical knowledge, division of work, and improvidence of workingmen whose trade is subject to periodical enforced idleness.

JAS. S. EWING,
Minister.

BRUSSELS, *June 6, 1894.*

AID FOR THE UNEMPLOYED IN BERNE.

In the year 1892, an "Arbeitslosen-Commission" (commission for the unemployed) was organized at Berne for the purpose of supplying labor and, in the meanwhile, supporting the unemployed. The experience gained by this commission brought them to the conclusion that a permanent organization should be effected, not depending entirely on charity or municipal aid, but, if possible, based upon a broader and more permanent foundation. The commissioners recommended that a mutual-aid-insurance bureau, with proper equipment and suitable officers, should be established, and that workingmen should be urged to become members and contribute by small monthly dues, while employed, toward a fund to support the institution, this fund to be increased by yearly contribution from the city council out of the municipal

treasury and by donations of charitably disposed people and the employers' union. The matter was discussed at length, and met, as is usually the case, with considerable opposition; nevertheless, a bill based on these suggestions was passed by the city council and became a law.

The essential feature of the bill is an "Arbeits-Nachweis-Bureau" (labor information bureau), working under the immediate supervision of the municipal council, a committee of seven members to have control over the mutual-aid-insurance association in connection with the above bureau. The monthly membership dues are 40 centimes (8 cents) per month, payable monthly, and the amount appropriated by the city council for the first year is 5,000 francs ($1,000). A subscription list was opened to the public, and the employers' union also was urged to contribute.

Every member in good standing, having paid his dues regularly for at least six months, and who is out of employment for two weeks, is entitled to benefits. These benefits are set at a maximum of one franc (19.3 cents) per day for single men and 1.50 francs (29 cents) per day for married men. These benefits may look inadequate to Americans; therefore, it may be well to state that the purchasing power of one franc in Berne, for food and other articles usually purchased by the Swiss workingmen, is much greater than in the United States.

The diet of a Swiss workingman consists mostly of flour soups, bread, cheese, and cheap wine. Meat is, so to speak, a luxury; in fact, it is dearer than with us, and workingmen do not eat meat daily, as is the case with our people.

Benefits are paid only to such as are innocently out of employment; those leaving their work willfully and without just cause are debarred from drawing benefits. The committee of seven supervising members is made up from the following organizations: Three members from the city council, two members from the employers' union, and two members from the local labor unions.

This law, after an operation of one year (1893–'94), has shown the following results:

At the end of 1893, the rolls showed an active membership of 354, some having left the city or dropped out. Of 404 members who joined the association, 24 became members in April, 16 in May, and the balance joined in June. The headquarters open December 1, and remain in operation until the last day of February, these three months being the hardest to overcome, owing to the inclemency of the season. At any other period, labor is, comparatively speaking, easily obtained. Workingmen who applied for benefits numbered 118 in December, 92 in January, and 6 in February. The number of members who drew benefits was 165, while 51 found immediate work through the efforts of the association.

The prescribed regulations for those entered on the rolls of unemployed claiming relief were strictly enforced. Well-heated headquarters, supplied with newspapers, benches, and tables, were provided. Each person regis-

tered as unemployed had to answer roll call twice a day, beginning from the day on which he reported himself out of work. The headquarters were opened at 8 a. m. and closed at sundown. Nonmembers without employment had the privilege of visiting the headquarters and making themselves comfortable during the business hours.

Those members failing to answer roll call are fined half a day's benefits, which, as already stated, are 1.50 francs per day for a married man or a single one supporting a family and one franc for single men. Benefits are paid weekly, Saturday being pay day. The smallest amount paid out in any one week was 13.50 francs ($2.61), the highest 919 francs ($177.44).

The amount of benefits paid the first year was 6,825.75 francs, the total outlay, including running expenses, being 7,815.70 francs. The receipts to meet the above amount were obtained from the following sources: Membership fees, 1,124.80 francs; employers' union, 949.60 francs; voluntary donations, 1,005.90 francs; city treasury, 4,735.40 francs; total, 7,815.70 francs. The smallest amount of benefits received by one member was 50 centimes (9.65 cents) and the largest 105 francs ($20.26), the average being 41.50 francs ($8.01).

The dues paid by each member, as before stated, are 40 centimes per month, or 4.80 francs per annum (92.6 cents).

The results are satisfactory to the authorities and citizens. Over 400 workingmen became active members the first year, and it is hoped the number will continue to increase year by year as the beneficial results become apparent. One feature worthy of mention is that every member accepted work promptly when provided for by the association, thus ceasing at once to be an unnecessary burden. While the first year's membership of this new association may seem small, it must be remembered that Berne is not a manufacturing town, it being the capital of Switzerland, where all the federal officers and foreign legations are situated, and that the total population does not exceed 50,000.

EUGENE GERMAIN,
Consul.

ZURICH, *May 26, 1894.*

PROTECTION OF CHILDREN IN EUROPE.*

Although protection of children by law may exist in most of the States of the American Union, a brief review of the various European enactments may be of interest.

For the purpose of reference, children requiring the intervention of state protection may be divided into four groups: (1) Orphans and abandoned children; (2) youthful paupers, beggars, and vagabonds, generally under 18 years of age; (3) minors who have not reached the age of judgment, and ac-

* Reports upon this subject were published in previous CONSULAR REPORTS as follows: "Law Regulating the Employment of Children in Factories in Germany," No. 89, p. 286; "Laws Governing the Employment of Children in Europe," No. 116, p. 65. The Special Consular Reports on "Vagrancy and Public Charities in Foreign Countries" deal largely with this subject.

quitted of crime by reason of want of discretion, and young criminals and lawbreakers who, notwithstanding their undoubted perversity, have not yet attained the age of responsibility; and (4) children under evil influences, either by the example or by the instruction of depraved parents. It is of this last class that I would chiefly speak at this time.

INTOXICANTS.

Perhaps the law most generally enacted is that which forbids the sale of intoxicating liquors to children and punishes those who cause children to drink excessively.

ROVING MINSTRELS.

Among the most pitiable, however, are those children whom their parents or guardians cause to go about begging, performing some acrobatic feat, or singing for the sake of gaining some small pittance from the charity of the bystanders. Formerly, in European states, their number was enormous, and even yet, in spite of the various prohibitory laws, it is not rare, especially in southern countries, to see children of the most tender years carried from place to place and put on exhibition to earn the support of their worthless parents. Very frequently, the parents rent or sell their offspring to the strolling player. Doomed to be raised in the midst of disorder, living without shame, and given over to ignorance, they are forever engulfed in the fatal maelstrom of demoralization.

FACTORY EMPLOYÉS.

Then, again, a condition, partly excusable by necessity, has widely prevailed in connection with factory employment. Children belonging to the laboring classes are obliged to enter the workshops before they are acquainted with the school. Formerly, these "apprentices" received a certain technical instruction, which partially supplied the need of a more regular education. At first, they were given the more simple parts of the work to perform; these they were taught, and they were then gradually promoted by easy stages until they became thoroughly conversant with their trade. But now, children placed side by side with rattling, unsympathetic machinery become, in a short time, only the hands of these giants, while their hearts grow as hardened as the limbs of the monsters which they feed. Compelled by modern competition to excessive and continued labor, in unhealthy and corrupting surroundings, their physical growth and mental development are exposed to grave danger.

PAST AND PRESENT.

In former times, the right of the father to the labor and earnings of his child was held inviolable by law. Again, it was deemed wrong to interpose any obstacles to the liberty of industry. Let the employer use such labor as he will; let him who will or must labor. Such was the ancient doctrine. But in time, society has recognized higher rights. The general welfare of

the people is now regarded as more important than the protection of individuals. This, however, has its corollary—that wherever the welfare of the people is best protected, there the individual has the greatest liberty of action. For the sake of the future years of the child, excessive work at too early an age, and too prolonged under dangerous or unhealthy conditions, has been prohibited.

REGULATING LABOR.

England was the first to attempt the regulation of child labor in factories. In 1802, Parliament, on the initiative of Robert Peel, passed an act relative to the work of children, and since that time, it has gradually extended its protection. Russia and Austria passed some laws in this respect in 1839, and France has been actively engaged on the subject since 1841. Belgium, in 1884, by a royal decree, modified the antiquated law of 1813, determining the age of admission to work in the mines, and by the act of December 13, 1889, the labor of children in industrial establishments was regulated.

But there is need of legislation beyond the mere limitation of hours of labor and kinds of toil. It frequently becomes necessary to afford the child protection against either the neglect or even the willful ill treatment of parents. Public authority can not permit children to become morally depraved, either by the indifference or by the example and inducement of their natural protectors. These moral outcasts will, later on, threaten the life of society.

ROMAN LAW.

According to the ancient Roman law, absolute power was vested in the father of the family, even to the exclusion of the mother. He had the right of proprietorship in the person and property of his descendants during their existence. He even had the right to sell them, and to put them to death. As civilization increased, the severity of this authority was mitigated by law; but still, during the Middle Ages, wherever the Roman law was in force, the general character of the paternal authority was recognized and respected by the state.

GERMAN LAW.

The Germans had an entirely different conception of the subject. The authority of the father was subordinate to the welfare of the child. The care of the child was an obligation which nature imposed upon the parent. Law and custom endeavored to protect the children, to guard their personality, to assure their existence. In the absence or after the death of the father, the same rights and duties reverted to the mother. This protection ceased when the children reached their majority, when they married, or were emancipated.

MODERN LEGISLATION.

It is the difference between the theories of the Romans and the Germans which distinguishes, even in modern times, the various legislation upon this

subject. In a modified form, one or the other idea has been adopted, as the jurisprudence of a country is derived from one or the other of these two sources. Most nations have adopted measures for the prevention of crime by those of youthful age, as well as to protect young persons from example and instruction in crime by their elders. These various enactments afford a field of interesting study.

Holland.—In its latest code, dated March 31, 1881, Holland has admitted the principle of "forfeiture" as regards parents who cause their children to participate in any misdemeanor whatsoever, or who commit any specified infraction of law to their prejudice. In case of the "impossibility" of the father, his rights pass to the mother, and the courts consider, in this category, his unworthiness or his incapacity.

Russia, Poland, and Portugal.—Russia and Poland have specified numerous instances when the parents may forfeit their prerogatives. The Portuguese code deprives of the paternal power those who may have been convicted of abuse in its exercise. Against a father guilty of a slight offense, the judge may also pronounce a supplementary sentence, which deprives him, for a certain time, of the custody and care of his child and its property. In Portugal, however, the law seeks to punish after the wrongful act rather than to prevent its commission.

Italy.—The Italian law takes account of the double necessity—to prevent, as well as to punish, the wrong conduct of the parent. It admits the suspension of his power, before any crime or misdemeanor, as a preventive measure against the father who either fails in his obligations or is incapable of fulfilling them. The court may, on the demand of the family or the proper public official, remove the child from the paternal roof, even against the will of the father. As a consequence of this principle, when the parents abuse their authority, when they violate or neglect their duties, the court has the right to appoint a guardian over the person and goods of the child.

Switzerland.—In Switzerland, in all the cantons, with their various laws, there does not exist any difference between the paternal power and guardianship; these two powers are confused and are subject to a tutelary authority which is vested in the administration of most of the cantons. The father's power is given to a delegation of the communal council, under the superintendence of the prefect or of the executive council itself. Swiss legislation betrays a tendency more and more marked to let the interests of the children outweigh the natural rights of the parents, and to subordinate these latter to the power of society.

Germany and Austria-Hungary.—The same is true in Germany and Austria, where the paternal power is subject to the supervision of a public guardian. This functionary, corresponding to a justice of the peace, interferes in virtue of his office. In certain cases, besides the full deprivation of his authority, German and Austrian legislation admits that the rights of the father shall be suspended, or limited, if he show unworthiness or incapacity. Controlled in their employment and practice by the orphans' council of the

commune, these rights may, in Hungary, be extinguished when the education and support of the child are neglected, and when its morality, health, or fortune are endangered.

Norway and Denmark.—In Norway and Denmark, whose institutions are strongly affected by Germanic traditions, the paternal power is placed under increased restriction. In this respect, Scandinavian laws resemble those of the Swiss cantons. The tutelary power is confided to certain local authorities, assisted, after the manner of a council, by certain members of the family. The applications of this power are not defined or regulated beyond its right to prevent excess or to supplement all weakness of the paternal authority. In Denmark, it is exercised under the supervision of the Government, by means of prefects; in Norway, it is purely administrative. The authority of the State comes to the aid of the child when the father neglects his obligations by indifference or misconduct; when his health or his poverty prevent him from taking care of his child; when he is convicted of immorality or brutality; or when, by his fault, the child happens to be condemned for vagrancy or beggary.

England.—More than any other nation, perhaps, England has been menaced by the progress of dangerous classes, composed of or originating largely from children deserted or ill-treated by their parents. The right of the father to the care, education, and guardianship of the child has always been dominated by the traditional principle by virtue of which the lord chancellor, in the name of the sovereign, has a control higher than the father. The law has always had the right of substituting a guardian in the place of the incapable or unworthy father. By virtue of the act of August 10, 1866, supplemented by that of August 2, 1880, every person has the right to apprehend and conduct before the magistrate abandoned children found in a condition of beggary or vagabondage, or known to habitually frequent bad resorts. The judge has the absolute authority to order them to be sent to industrial schools.

Spain.—Spain, in its turn, freed from the Roman tradition, has separated from the principles of the Roman law. The new code, promulgated July 24, 1889, grants to the courts the right of depriving parents of their authority or of suspending its exercise when they treat their children with excessive severity and give them orders, advice, or examples of a pernicious character.

France.—France long hesitated to follow in the paths traced for her by these humanitarian and generous laws, and still, of all civilized countries, she was the one where the child was least defended and protected by legislation. No system of protection against the abuse of depraved parents had been inaugurated. Public authority assisted, in certain instances, the child deprived of father and mother and found abandoned or poor; but the child ill-treated, neglected, or misguided was left dependent on the uncertain assistance of charity. In the absence of the right of law, voluntary associations of well-disposed persons could do little. The principle of the failure of the paternal power existed in French legislation, but it was long left inactive.

The first laws passed were those against parents inciting their children to debauchery. In 1874, an act was adopted preventing the employment of children in vagabondage or beggary. Finally, a commission of inquiry was appointed, and, after exhaustive study of the subject, both by examination of the conditions existing in France and in foreign countries and the various laws of the latter, an elaborate report was submitted to the Senate in 1881. On July 10, 1883, this body acknowledged, by resolution, the necessity of the adoption of such measures. Foreseeing that such a complex and difficult question would involve lengthy discussion, but still realizing the immediate necessity for certain enactments, the Government proposed a division of the legislation and submitted certain portions, which, by adoption of the legislative branch, became law on July 24, 1889.

Belgium.—In Belgium, there is not yet any general law covering the subject. The courts very seldom apply the provision of the code which gives them the right to deprive the father of his natural authority in extreme instances. These cases are so very rare that even sentence to death or to life imprisonment does not often cause the court to exercise its authority in this respect. On November 29, 1891, a law was enacted by which abandoned children, without father or mother, may be sent for safe-keeping to certain reform schools until they reach their majority. This regulation, however, is not often enforced. There are certain local statutes and customs relating to the detention and support of these classes of children, but they are without system or comprehensiveness, and frequently fail in their purpose for want of proper authority.

SOCIAL SELF-PROTECTION.

From this brief outline of European legislation, it is evident that the national authorities have only at a comparatively recent date been aroused to the necessity of extending the strong arm of the law around helpless youth. Almost all this special legislation has been enacted within fifty years. Again, it is to be observed that the tendency of this age of civilization is to strip the parent of his authority, so absolute in Rome, and to vest his rights in the state. Society recognizes more and more that all the young are its children. To permit them to pass their early lives in vice, to be instructed in licentiousness, and to be taught crime is to condemn them in their later years to disease, poverty, and misery; to shield them from debauchery, from evil example, from demoralizing associations, is to provide for the future honest, industrious, intelligent, and strong members of the body politic. In the hands and heart of youth, repose danger or prosperity for the morrow.

HENRY C. MORRIS,
Consul.

GHENT, *May 3, 1894.*

BEET-SUGAR TECHNICAL SCHOOL.*

In view of the interest which is now beginning to be felt in the United States in the beet-sugar industry, it is believed that the method adopted in Germany of securing intelligent cultivation of the sugar beet and expert extraction and refining of the sugar will be of advantage to American growers and refiners. This subject will be treated more in detail in an extended report now being prepared by me upon sugar cultivation and refining in Germany; but, perhaps, a good purpose will be served in sending out, in advance, an account of the methods of instruction which obtain.

The German is nothing if not thorough. He does not approach any undertaking unless he either knows all about it or has exhausted every available source of information. It is for this reason that German workmanship and German methods, if not the best, at least carry the stamp of sincerity and honesty. This thoroughness is seen in a marked degree in the beet-sugar industry, which has brought the production of beet sugar in Germany up to the enormous total of 1,210,000 tons in one year, as against less than 50,000 tons produced in the United States in the same time. No other country approaches Germany in the quantity produced. Austria, however, comes nearest, with a production of 700,000 tons. The success of the Germans has been due to the fact that the beets are so thoroughly and so intelligently cultivated that the ground holds back nothing, but yields up every possible element of its productiveness. This intelligent cultivation is due to the fact that every sugar plantation is managed by a graduate of a sugar school. In many cases, too, every one of the responsible employés is also a graduate of the school. As a result, every single step, from the preparation of the ground for planting to the packing of the sugar for export, is attended with scientific methods and supervision. The owner of a beet-sugar plantation in Germany or of a refinery would as soon think of employing managers and foremen who were not instructed in the schools as he would of employing a physician who could not boast a diploma from one of the recognized medical schools.

One of the best schools of this class in Germany, which means in the world, is in the city of Brunswick, in the duchy of the same name, and a description of its aims, its course, and its results is typical of all the rest.

The school has been in successful operation more than twenty years, and is under the especial patronage of the Association of Beet-Sugar Growers of the German Empire and the Association of German Beet-Sugar Refiners. It is designed exclusively for those who are engaged either in sugar growing or refining, or who intend to engage in such pursuits, and is, therefore, essentially practical. No time is devoted to subjects outside of these interests, and every study has a direct bearing upon the problems which arise daily in

*See also "Brunswick Technical High School" in the series of reports entitled "Technical and Trade Schools," in this number, p. 574.

the practical business of growing or refining. To enable those who are already employed to attend, the school is open only when it is the time for the refineries to be closed, namely, from the middle of March to the middle of July. While the course is thus but four months long, it should be remembered that it is supplemented by practical work in either the field or the refinery for much of the remaining part of the year. No limit is set to the time a student may spend at the school. He may come back year after year if he so desires, but at the end of each four months' course, students are given a certificate showing the time they have spent at the school, the courses of study pursued, and the degree of efficiency attained.

Not only are the students instructed in the practical growing of beets and the refining of sugar, but they are given lectures on the scientific laws which underlie causes and effects witnessed, and are constantly drilled in the chemical laboratory, being especially encouraged in chemical experiments looking to the development of saccharine matter in the beets and its extraction with the least possible percentage of loss. They are also taught all about the machinery used in the different processes of refining, and are required to be familiar with the construction of refineries.

The tuition charge is $100 for each course, and the cost of living economically in the city of Brunswick is about $25 a month. Everything required by the student, except personal text-books, is furnished by the school.

Thus far, 817 persons have taken advantage of the opportunities offered by the school and have finished its course. Every sugar-growing country has been represented, and 9 pupils have come from the United States. Naturally, however, the greatest number of the scholars are Germans, that Empire having furnished 531 of the total, with Holland second, numbering 155, and far-off Hawaii represented by one. At the present time, there are 70 attendants upon the course. Most of the students are between 20 and 30 years of age, though some of them are over 30 years. Many of them are graduates of universities or technical schools, though there are not wanting others who have received only a common-school education, and who come directly to the school from the field or the refinery, feeling that a more scientific knowledge of the business is required if they are to compete with their more thoroughly educated fellows.

The school possesses its own building, built especially for the purpose, completely equipped with all necessary appliances, and furnished with a very complete technical library.

The course includes instruction in the following: Physics and electricity, general chemistry, analytical chemistry, chemistry of sugar, practical analytical work in chemical laboratory, sugar-refining, structure of the sugar beet, cultivation, mechanics, applied geometry, machinery, steam-boiler installation, mechanical drawing, practical bookkeeping, and, in addition, frequent visits to neighboring beet-sugar plantations, refineries, and machine works.

The esteem in which the school is held and the value placed upon the results attained, are evinced by the fact that there is a constant demand for the services of those who have followed the course of the school with success.

There is no doubt that those capitalists who are now making such an earnest and commendable effort in California, Utah, and Nebraska to develop the beet-sugar industry would find a study of the German methods of instruction, with a view to the establishment of a similar school in the United States, profitable in more senses than one. If it is at all worth while to establish the industry in our country—and of that there can be no question—then it is certainly desirable that it should be gone about in a way to make the most of it. This can be done only by the most intelligent cultivation and the most scientific refining possible, and those essentials can be secured only by thorough theoretical, as well as practical, instruction.

E. W. S. TINGLE,
Consul.

BRUNSWICK, *May 28, 1894.*

SUGAR-BEET CULTIVATION.*

Beet-growing has well-nigh become a science, and to it, more than anything else, is the farmer of these days indebted for the bountiful crops and large returns, and the corresponding increase in the value of his ground. Beet culture has forced the farmer to manage his farm scientifically and systematically, and, as a result, not only does he raise the well-paying beets, but all other crops in rotation show a considerable increase. It is, however, generally admitted that, in consequence of the competition with other countries, the sugar-growing industry in Germany is at its height now, and lower prices will probably rule the future. Farmers, manufacturers, and scientists are, therefore, on the alert and always intent upon introducing improvements and labor-saving appliances to render the industry as profitable as possible. A few hints which I have gathered from publications of agricultural stations may be of interest to parties venturing into the business of growing this valuable product in the United States.

People should not start blindly, but should inform themselves of the fundamental requirements for the successful raising of these roots. There are certain conditions in the culture which are beyond, but others again which are within, our control. Three factors are to be considered—the climate (temperature, moisture, and sunlight), the soil (geologically, physically, and chemically), and the beet itself.

The soil is the fundamental condition, because it is the medium from which the root extracts the substances necessary for the formation of sugar. Every grower, therefore, should have a thorough knowledge of his ground, and not alone of the surface soil, but also of the various subsoils, and especially their density, because the latter will naturally have a considerable influence upon the moisture in the ground. This can only be done by boring

* Reports relative to sugar-beet cultivation and manufacture of beet sugar will be found in CONSULAR REPORTS Nos. 131, 136, 137, 138, 142, 144, 152, 158, 161, and 163. The volume of Special Consular Reports entitled "Beet-Sugar Industry in Foreign Countries" contains a history of the industry in the several countries of Europe up to the year 1891.

or digging, but it will pay to incur the expense. Seven different classes of soil are distinguished—the stony, sandy, loamy, clayey, marly, limy, and the humous. Their adaptability for growing beets differs very much, and, to show their respective qualities, the following soils have been prepared artificially: Sandy soil, containing 76 per cent of quartz; clayey soil, containing 47 per cent of clay; limy soil, containing 74 per cent of lime; humous soil, containing 68 per cent of peat; mixed soil, containing equal portions of these four soils.

One hectare (2.47 acres) of each of these soils was planted, with the following results:

Soil.	Beets grown.	Number of plants.	Weight per plant.
	Kilograms.		*Grams.**
Sandy	2,052	37,400	55
Clayey	2,254	30,000	75
Limy	39,356	39,800	989
Humous	33,040	31,000	1,065
Mixed	59,100	39,200	1,508

*1,000 grams=1 kilogram=2.2046 pounds.

Although it is possible to change a naturally poor beet soil to a more fertile one by the addition of the necessary substances, yet in practice it is not advisable to do so, owing to the expense attending the same. Beets should, therefore, be grown only on soils and grounds naturally adapted for their cultivation. Experience has shown that, of all soils, a mild, deep, humous, loamy soil, with a loose, porous subsoil, is by far the most serviceable for a beet field. The loam itself is a mixture consisting of from 30 to 50 per cent of sand and from 20 to 50 per cent of clay. Such a loamy soil is tender and loose, and will always return good yields. A sandy soil, with a high percentage of fine sand; a common marly loam, consisting of clay, sand and large quantities of lime; and a rich, humous, clayey soil are also suitable for the beet. Stony soil is absolutely unfit for it. In recent years, all other soils have been used for the purpose, and some of them have given tolerably fair results; yet it is now an accepted fact that it is a mistake to try and grow beets and establish factories, except in such localities as possess a sufficiently large area of a natural beet soil. Other soils may, and probably will, give fair results, if properly treated, but they will not be lasting.

Next to the geological condition, the elevation of the ground and its inclination toward the horizontal line are beyond our control, and must, therefore, be carefully considered. Leaving aside the increased labor required in working sloping grounds, the physical conditions are materially different from those in level ground. It has been demonstrated by experiments that in ground sloping toward the south at an angle of 48° the highest temperature is reached during the months of February to April and August to October, and, if sloping at an angle of 32°, during the months

of May, June, and July. Assuming, now, that ground sloping more than 30° is not adapted for tilling, and considering what months are the most important for the growing of the roots, we can accept it as a general rule that a field sloping southward becomes the warmer the greater the angle is toward the horizontal line, and that such a field will give the best yields.

It must, furthermore, be considered, that the largest amount of moisture is evaporated on ground sloping toward the south. The evaporation of lands sloping toward the east is less, toward the west still less, and toward the north least of all. In level ground, the division of the moisture is much more uniform than in sloping ground. In the latter, the moisture is increased toward the lowest point, and the greater the slope the greater will be the difference in the moisture between the two ends of the field. Experiments made from August 20 to November 4 have shown that the amount of water evaporated on a surface of 1,000 square centimeters (139 square inches) of level ground, sloping 10°, 20°, and 30°, was 3,818 grams, 4,235 grams, 4,694 grams, and 5,091 grams.

The color of the soil is another element which, as a rule, is beyond our control. It has been demonstrated that, in summer, a dark soil is comparatively warmer than a light one; that the daily changes in temperature are greater in a dark soil, and that the radiation of the heat from the soil during the night is much more rapid, but that the dark soil will not become any cooler than the light. The color of the soil has, therefore, an influence upon the heating of the ground, which it is well to consider. A high temperature in the ground materially favors the development of the roots, and all natural conditions which secure such temperature without artificial aid are factors which should be taken into consideration, when planning the introduction of sugar beets into a certain section.

Climatic conditions are very important factors in beet culture. In many ways, the weather has a greater bearing on the crop, in quantity as well as quality, than soil, culture, manuring, etc. Although, no doubt, the climatic conditions follow certain fixed rules of nature, science has so far not been able to decipher the same, and this is, therefore, an unknown quantity with which the beet-grower has to figure. The climatic conditions which concern the farmer most are heat, humidity, and light. With one of these missing, beet culture will be a failure. At the very beginning—the sprouting of the seed—humidity and heat are of the greatest importance, for these two, in connection with the oxygen, inaugurate the process of sprouting. The heat has here not alone a direct effect, but also an indirect one, as, with an increased heat, the capability of the seed to absorb the humidity necessary for the sprouting process is increased. Thus the seed absorbs water in a given time, at different temperatures, as follows: At 40.1° F., about 69 per cent of its own weight; at 50.9° F., about 91 per cent; at 59.9° F., about 95 per cent; and at 65.3° F., about 97 per cent. The lowest temperature of the soil at which the sprouting is possible is now considered to be 44.6° F. Experiments have shown that at a medium tempera-

ture of the air of 50° F., the process of sprouting is finished in thirteen days; at a temperature of 54.5° F., in twelve days, etc. The more quickly the sprouting takes place the more favorable the final result will be; but it is of the utmost importance that, after the process has once set in, the temperature should not fall below a certain point. If it does, the roots will have a tendency to become delicate and to lose, in a measure, the power to resist their natural enemies.

Regarding the quantity of heat required for the development of the beet, the experiments made by Briem are considered the most reliable. Briem bases his results on observations made at eleven meteorological stations in Mecklenburg, Silesia, Bohemia, Moravia, Austria, and France. He finds that for the first period—from the middle of April to the middle of June—a daily average temperature of 51.26° F. is required; for the second period—from the middle of June to the beginning of August—65.84° F.; for the third period—the months of August and September—a temperature of 61.7° F., and an average temperature during the entire development of 59.54° F.

Grouvon finds the most favorable temperature 60.8° F. for the first, 61.16° F. for the second, and 62.6° F. for the third period, or an average of 61.52° F.

Heinrich obtained favorable results at an average temperature of 55.58° F., and Hanamann at an average temperature of 54.14° F.

All this shows that in beet culture the limit of the heat required is broad.

Of greater importance than a fair average temperature seems to be the proper distribution of the heat during the above-mentioned three periods. It is not favorable for the beet if the needed quantity of heat is distributed over too long a period or too evenly. The beet develops best if it receives during the first period a total heat of about 1,202° F., during the second a total of about 2,102° F., and during the last a total of about 1,832° F.

The years 1892 and 1893 have shown that a sufficient humidity in the soil during the winter is of the utmost importance. In this case, even a following dry summer will not injure the beet crop, while after a dry winter, the greatest industry and the hardest labor can not overcome the disastrous work of an ensuing dry summer.

Hanamann considers the soil as sufficiently humid if during the winter 182 millimeters (25.4 millimeters=1 inch) of rain or snow fall in sixty-three days, *i. e.*, if each square meter (1.08 square yards) of soil receives 192.4 quarts of water. Briem requires 97 millimeters for the first period, 114 millimeters for the second, and 100 millimeters for the third, or a total of 311 millimeters of rain. Grouvon considers as sufficient 74.6 millimeters for the first, 142.8 for the second, and 78.1 for the third period, or a total of 295.5 millimeters. In other words, and generally speaking, April and May should have a moderately large, June to August a bountiful, and September a small rainfall. Of great importance is the distribution of the rain. In dry years, many but short showers are of little use; rain should fall during greater intervals, but copiously. It is therefore of much greater im-

portance in beet culture to know and consider the distribution and the amount of every single rainfall than the number and total result of all combined. Rimpau has made experiments in that line and found the number of rainfalls and the quantity of water precipitated in each one, measured in millimeters, from April to October in 1891 and 1892 as follows:

At Schlanstedt.				At Halle.			
1891.		1892.		1891.		1892.	
Number of rainy days.	Average rainfall per day.	Number of rainy days.	Average rainfall per day.	Number of rainy days.	Average rainfall per day.	Number of rainy days.	Average rainfall per day.
	Mm.		*Mm.*		*Mm.*		*Mm.*
79	0 to 5	64	0 to 5	64	0 to 5	58	0 to 5
14	5 to 10	10	5 to 10	15	5 to 10	10	5 to 10
14	10 to 15	5	10 to 15	8	10 to 15	2	10 to 15
7	15 to 20	2	15 to 20	3	15 to 20	2	15 to 20
1	20 to 25	1	20 to 25	1	20 to 25	1	20 to 25
115	520.9	82	307.3	91	385.2	73	227.2

In Schlanstedt, according to the above statement, each rainfall averaged 4.6 millimeters in 1891 and 3.7 millimeters in 1892. In Halle, each rainfall averaged 4.2 millimeters in 1891 and 3.2 millimeters in 1892.

These observations show that during the year 1892 the number of rainfalls, as well as the amount of water precipitated during each fall, was considerably less than in 1891, which fact, no doubt, had a great influence upon the crop of 1892, and contributed to its inferiority.

The other important climatic factor is light. As the latter has a great influence on the coloring of the leaves, and as the green of the leaves helps to develop the formation of sugar in the root, the importance of light is easily seen. All other conditions being equal, beets which have received a stronger light will show a large percentage of sugar. The strongest light, however, is not furnished by a clear, blue sky, but by a sky covered with light, white, feathery clouds. Practical experiments, however, have not as yet been made. Rimpau is just organizing for extended observations in this direction, and I may be able to report on their results later on.

JULIUS MUTH,
Consul.

MAGDEBURG, *May 8, 1894.*

INDUSTRIES OF THE ORANGE FREE STATE.

The abundant products of the last harvest in the Orange Free State are realizing very small prices in the different markets. Sweet corn is now sold at $1.20 per 200 pounds, and wheat from $3.50 to $4 per 200 pounds. It is, however, anticipated that the next harvest will be as much of a failure as

the last one was a success. The locusts are again appearing in great swarms, destroying everything before them. The efforts made both by the Government and the people to get rid of these pests have proved futile.

AGRICULTURAL SHOW.

The agricultural show took place on the 7th of March. The exhibits showed decided improvements. American agricultural implements were shown in a more advantageous manner than last year, and were represented in stronger numbers. It is almost needless for one to report that they carried off all the first prizes. A number of them were sold on the "show ground."

The agricultural congress held its sitting on the following day. The chief subject under discussion was the duty on the importation of wheat from Basutoland.

IMPORTS.

The Orange Free State Government has just published statistics showing the importation of goods into the country. The following is an extract:

Articles.	1892.	1893.
Agricultural implements	$60,410	$87,000
Ale and beer	39,295	31,780
Apparel and slops	303,005	262,490
Butter	1,310	1,935
Candles	23,910	17,450
Carriages, carts, etc	8,820	5,975
Coffee	222,300	235,780
Corn, grain, and flour	21,120	11,675
Cotton manufactures	294,180	292,435
Drugs, chemicals, etc	35,960	48,680
Dynamite	51,600	73,880
Earthenware, etc	35,860	32,055
Furniture	99,820	103,040
Drapery, millinery, etc	680,451	600,770
Hats	30,320	27,380
Ironmongery, etc	269,050	217,905
Corrugated iron	89,910	80,605
Saddlery and harness	48,950	39,735
Soap	27,920	27,110
Spirits	48,025	35,935
Stationery	50,500	36,135
Wood	159,995	149,065
All other articles	1,302,040	1,159,260
Total	3,904,751	3,577,615

It will be seen by the above that the importation of agricultural implements shows an increase in 1893 of $26,590 over 1892, whereas the importations of other articles have decreased. The Government does not, unfortunately, keep any record as to whether the implements are imported from the United States or from other countries. It may, however, be taken for granted, and it can not be gainsaid, that the greater portion of the agricultural implements are from the United States.

WOOL.

Reuter is very fond of cabling all over the world the following report, which is yearly seen in the English papers, viz: "The first series of wool sales took place on ——. There were offered for sale —— bales of Cape and Natal wool."

The above would be more correct if the English papers were to say "Orange Free State, Cape Colony, and Natal wool." It is a fact that of the number of bales of wool sold annually on the London market as Cape and Natal wools, 120,000 bales are produced in the Orange Free State, and it is of a much better quality than that of Cape Colony. It is in justice to the Orange Free State, and for the guidance of American wool merchants, that I make this correction.

RAILROADS.

The Orange Free State Government has been awaiting proposals for the construction, maintenance, and working of a railroad between the towns of Harrismith and Kroomstad, a distance of 120 miles. Bids were asked on the 1st of this month, to be sent in by the 16th. There was, therefore, no time for making the fact known in the United States. It is expected that another line will be built from Bloemfontein to Kimberley, a distance of about 95 miles. Bids for this line will very likely be invited after the session of the Volksraad (Congress), which body will meet on the 1st of May next.

E. R. LANDGRAF,
Consular Agent.

BLOEMFONTEIN, *March 31, 1894.*

AMERICAN PETROLEUM IN THE UNITED KINGDOM.

As fully half this community use burning fluid for illuminating purposes, and as the American article is in general demand, which fact is naturally distasteful to the Scotch and English refiners, who will use all legitimate means to curtail the American supply in order to increase their own, I deem it proper to forward the following extract from the Parliamentary proceedings in this morning's issue of the local press, which, probably, was published in the same form throughout the Kingdom:

THE BELFAST LAMP FATALITY.

Mr. McCartan asked the Secretary of State for the Home Department whether his attention had been called to the inquest held in the city of Belfast on May 12 last on the body of Francis Conlan, who came to his death from burns received by the explosion of an oil lamp as he was turning down the wick before going to bed; whether he is aware that the oil used in the lamp was an American oil known as the "Royal Daylight Oil," the flash point of which is about 82° F.; whether he is aware that no Scotch oil flashes under 100° F., and the bulk of it is much over this point; if the minimum allowed for oil supplied to the war office is 105° F.; and whether, considering the danger of the present minimum flash point (73° F.) of lamp oils generally used by the working classes, he will cause inquiries to be

made into the matter or have a committee appointed to investigate it, with a view to legislation on the subject.

Mr. Asquith: Accidents with oil lamps in Ireland do not come under my notice. I have absolutely no jurisdiction in relation to the administration of the petroleum acts. As to the accident referred to in the question, the only knowledge I possess is derived from the copies of depositions taken at the coroner's inquest and furnished me by the honorable member. As to the flash point of the oil used in the lamp, I have no information, nor am I able to say what is the minimum flash point of Scotch oil or of that used by the war office. As I have more than once explained, the question of the relative safety of oil at certain flash points is a very debatable one, and it is open to doubt whether raising the flash point would put an end to these accidents. This is one of many points to be considered by a committee, which I should be glad, if possible, to constitute, though I can hold out no hope that any legislation on the subject could be successfully introduced this session.

Mr. Paul: May I ask my right honorable friend whether, considering the numerous accidents, the dangers, and loss of life from the use of oils of a low flash point, liable to ignition under the heat of an ordinary summer's day, he will appoint a small committee simply to consider whether oil should be admitted at a dangerous flash point.

Mr. Asquith: This is just the point upon which the operations of experts are at variance, some being of opinon that the low flash point was not the source of more danger. I can not separate this from other points connected with petroleum legislation, but I shall be glad if all the questions can be considered by a committee this session.

The point is that, if the American burning fluids are to maintain their prestige here, they must continue to maintain their high standard of quality, for, if there be any excuse for condemning them, opposition dealers on this side may be expected to take advantage of it.

JAMES B. TANEY,
Consul.

BELFAST, *June 6, 1894.*

PROGRESS OF THE GREAT SIBERIAN RAILWAY.*

At the last meeting of the Siberian Railway committee with the economic section of the Imperial Council, which took place on May 15, the Minister of Finance submitted an important memorial in reference to the Great Siberian Railway.

According to the imperial decree of December 22, 1892, the west and central Siberian sections of the line, as far as the city of Irkutsk, as well as the Ussuri section from Vladivostock to Grafskaya and the connecting line between the Ural and Siberian railways, were to be connected in the year 1900. Last fall, it became evident that the road can be built as far as Irkutsk by the year 1898—that is, two years before the time originally indicated—and that the Ussuri line can be finished in 1896. The construction of the line from Grafskaya to Khabarovka has already been approved.

In view of these facts, it was resolved to accelerate the construction of the remaining portions of the Great Siberian Railway in the following manner: First, the building of the Transbaikal line is to be pushed, so that it

*For description of the Great Siberian Railway, see CONSULAR REPORTS No. 166 (July, 1894), p. 425.

may be opened for traffic in the year 1898, at the time of the completion of the central Siberian section to Irkutsk and of the connecting link from Irkutsk to Listvenichnaya, on Lake Baikal; second, the whole line along the Amour River is to be finished before the end of the year 1901. The Minister of Communication has been granted the necessary credit, amounting to 1,215,000 rubles, to carry out the preliminary work of tracing the line from Irkutsk around Lake Baikal, as well as in the Transbaikal region, and along the Amour River, and has also been authorized to forward, without delay, part of the material ordered for the other sections of the line.

The above resolutions received the sanction of the Emperor on May 25, and the preliminary work in the Transbaikal region has already begun.

CHARLES JONAS,
Consul-General.

ST. PETERSBURG, *June 19, 1894.*

MEXICAN MERCHANT MARINE.

The Mexican Congress has empowered the Executive to take all measures necessary to the establishment of a national merchant marine by the offer to shipbuilders of bounties and other privileges and the creation, likewise, of a new governmental department of marine. The federal decree in relation thereto, as published in the Diario Oficial of the 12th instant, has the following provisions:

(1) Foreigners may be allowed to acquire Mexican vessels.

(2) The laws now in force as to the make-up of crews to man the vessels are to be repealed.

(3) The registration of native or foreign built vessels is to be facilitated by the abolition of the system of bonds for the proper use of flags.

(4) The system in force for the issue of shipping licenses is to be modified, the renewal of such licenses being wholly unnecessary.

(5) A marine registry for the protection of seafaring people is to be established.

(6) Bounties for the encouragement of building sailing and steam vessels shall be granted in accordance with the following rules: (*a*) The bounties for steam vessels shall be greater than those granted for sailing vessels; (*b*) the amount of the bounty shall be assessed as per the gross tonnage of the vessel; (*c*) bounties on the construction of machinery, engines, and other auxiliary apparatus shall be adjusted to a standard unit of not less than 100 kilograms in weight.

(7) Navigation bounties shall also be granted in accordance with the following rules: (*a*) The unit of the bounty shall be greater for sailing vessels than for steamers; (*b*) the bounties shall be fixed in proportion to the tonnage of the vessels as related to the distance covered, measured on the maritime orthodromic line; (*c*) bounties shall be granted to all shipbuilders and for not more than ten years; (*d*) navigation bounties shall be on a descending scale; (*e*) sailing vessels of less than 50 tons and steamers of less than 75 tons shall not be entitled to a bounty.

(8) A temporary reduction on, or exemption from, import duties shall be granted on materials of all kinds entering into the construction of vessels of iron, wood, or steel. But, in order to enjoy the benefit of such reduction or exemption, importers shall, in guaranty that the import duties shall be paid in case the materials are used for purposes other than such con-

struction of vessels, give bond for the amount of such duties, such bond to be canceled when it is proven that the materials have been turned into the construction of a vessel.

(9) The Executive can concentrate into one new governmental department all matters relating to the national marine.

(10) Foreign vessels may be allowed to engage in the coasting trade, but only in given territory and for a given period of time; but the Executive reserves the right to enforce the prerogatives granted by law in favor of national vessels.

ISAAC P. GRAY,
Minister.

MEXICO, *June 13, 1894.*

GOLD-MINING CONCESSIONS IN MEXICO.

In encouragement of gold-mining in this country, the Mexican Government, by federal decree, grants certain concessions to parties who engage in the development of gold mines and placers. I have the honor to inclose a copy of said decree, taken from the Diario Oficial of the 12th instant, together with a translation thereof.

ISAAC P. GRAY,
Minister.

MEXICO, *June 13, 1894.*

EXTRACT FROM DECREE.

* * * * * * *

Sole article.—The Executive is hereby empowered, during the period of one year dated from the promulgation of this law, to make contracts for the prosecuting and operating of gold mines and placers, in accordance with legislation now in force and subject to the following conditions amendatory of said legislation:

First. The contracts shall be in the form of concessions, which the Executive shall issue freely and upon the hypothesis that it is in possession of data sufficient to justify the belief that such concession is to cover the mining of gold in the district to be developed.

Second. For the purposes of this decree, gold-mining regions shall include deposits of that metal, whether alluvial or not, as well as deposits wherein the gold is found mixed with some other metal, but where the commercial value of the gold exceeds that of the other concomitant metals.

Third. No region shall be considered as gold bearing if the average show of metals in all the mines included therein yields less of gold than expressed in the foregoing paragraph.

Fourth. As soon as the nature of the ore changes in such manner that the average yield mentioned in the foregoing paragraph is not realized, the contracts granted under this law shall be revoked.

Fifth. Each contract shall clearly specify the limits of the tract to be developed.

Sixth. Within the limits of such tract, the concessionaires can designate and acquire as many claims as can be located upon unoccupied territory or incorporate therein claims belonging to the concessionaires prior to the date of the contract, as well as any others they may hereafter acquire by purchase or other legal manner.

Seventh. Concessionaires shall obtain prospecting permits, subject to the laws in force, all other companies or private individuals being inhibited from prospecting in that district for

any kind of metals, but with the proviso that such permits shall be good for six months and no longer, and that, once lapsing and during the two years immediately succeeding, neither the concessionaires nor any other party can obtain such exceptional prospecting permits.

Eighth. The concessionaires can import into the Republic, free of import duties, the machinery, instruments, tools, and necessary apparatus for the purpose of prospecting and development of materials of construction for mines and metallurgical offices, provided such concessionaires first advise in each case with the Department of the Treasury and abide by the regulations thereby imposed. Should the concessionaires sell a portion of all the supplies thus imported without the consent of the Government, they shall lose all such supplies thus sold and forfeit, also, all the franchises granted in the concession, unless such sale be rendered necessary by bankruptcy or liquidation.

Ninth. The concessionaires shall enjoy a rebate on the annual mining tax for a period up to ten years, paying in the first year at the rate of one-tenth of the impost in force and an increasing amount each year until the full tax becomes payable in the eleventh year.

Tenth. During ten years' time, the concessionaires shall be exempt from all federal impost, with the exception of the tax alluded to in the foregoing article, and with the exception of taxes payable in stamps and mintage and assay taxes or dues.

Eleventh. The concessionaires shall invest in their undertaking during the first three years a capital of $500,000 at least, to be increased to $1,000,000 during the following five years.

Twelfth. The concessionaires shall, within the time and the terms designated in the contract, present the plans, samples, ores, descriptive reports, and geological specimens resultant upon their prospects.

Thirteenth. The concessionaires shall allow an inspector, appointed and salaried by the Executive, to examine the work of prospecting and mining.

Fourteenth. The concessionaires shall guaranty compliance with their obligations by a deposit, in minimum, of $10,000 in bonds of the public debt, to be furnished at the time of signing of the contract, which they can not redeem until they have proven the inversion of capital (see article 11) of at least $200,000. If the bonds deposited bear interest, the depositors shall withdraw the coupons in due time for collection.

Fifteenth. The exemption from imposts mentioned in the ninth and tenth articles does not include the mining of alluvial gold. In such case, the concessionaires, if discoverers thereof, shall pay, during the mining of such alluvial gold, at the rate of one-third of the imposts in force.

Sixteenth. Within two years from the date of this contract, the concessionaires shall establish a metallurgical establishment, capable of treating at least 400 tons of ore per week, or, in place of such establishment, any other concern capable, in the judgment of the Secretary of Public Works, of such amount of work.

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IRRIGATION CONCESSIONS IN MEXICO.

Minister Gray, under date of June 16, transmits a translation of a decree, published in the Diario Oficial of June 15, from which it appears that the following concessions will be granted to persons who may engage in irrigation in Mexico:

Exemption for five years from every federal impost, save the international revenue stamp taxes, on all capital invested in the plans, construction, and repair of the works defined in the contract.

The duty-free importation once of the machinery, scientific instruments, and apparatus necessary to the plans, construction, and development of the works.

The right to occupy, free of expense, public and national lands for the passage of canals, the construction of dams or dikes, and the formation of reservoirs.

The right to appropriate, on the ground of public service and utility, the property of private parties, on payment of proper indemnity and in accordance with the provisions defined by the railroads, in tracts sufficient for the uses described.

The Executive shall regulate the issue of water in the federal district and territories, making concessions for the construction of dams and reservoirs, subject, likewise, to the stipulations established in the civil code.

The Executive is authorized to grant the duty-free importation of machinery and apparatus necessary for the using of water for purposes of irrigation and power to companies obtaining concessions for that purpose from the States, provided such companies give guaranties to perfect such works in accordance with rules and regulations to be established therefor by the Executive of the Union.

CONSULAR INVOICES IN MEXICO.

By federal decree, published in this day's issue of the Diario Oficial, certain modifications are made in the Mexican budget for 1894–'95 respecting the issuance of consular invoices. I beg to inclose same in copy and translation.

ISAAC P. GRAY,
Minister.

MEXICO, *July 7, 1894.*

EXTRACT FROM DECREE.

* * * * * * *

ARTICLE 1. As hereinafter specified, the decree of November 11, 1893, modifying section III, article 78, of the general ordinance of maritime and frontier custom-houses of June 12, 1891, is modified, to wit:

"For the certification of each set of consular invoices: In case the declared invoice value of the effects does not exceed $100, $2; if exceeding $100, but not $1,000, $4; on each $500 or fraction thereof in excess, $1."

ART. 2. Before making out the certificate, consuls or consular agents shall require the protest or oath, according to the laws of the country wherein it is made, to the effect that the value assigned in the invoice to the effects is the true value, subject, however, to the prescriptions of the regulations of December 22, 1893.

ART. 3. This decree shall take effect on the 15th of August ensuing.

* * * * * * *

AMERICANS SETTLING IN MEXICO.

Consular advices received at the Department of State warn Americans against emigrating to Mexico with a view to permanent settlement with insufficient means or without informing themselves, in a reliable way, as to the prospects for earning livelihoods. While there are undoubtedly good opportunities in Mexico for enterprise, frugality, and thrift, it is, like other countries, a land of varying conditions, and it often happens that disappointment

is the result of emigration undertaken upon insufficient or misleading information, or without resources, which are always necessary to success in a new country. Many Americans have been induced by alluring statements as to the cheapness of coffee-raising, etc., to emigrate to Mexico within the past year, and some have lost their all by so doing. For these reasons, consuls desire to caution Americans against the representations of speculators, who are always on the watch for the unwary.

AMERICAN VS. GERMAN FARMING.

Mr. Conradi, director of the Agricultural Winter School at Hohenvestedt, Holstein, who was sent by the German Government to the Chicago Fair, and who made a study while in the United States of American farming and of the country's capacity for the continued exportation of certain farm products, recently gave a lecture at Dortmund embodying the results of his observations in the United States. A brief abstract may be interesting to American readers.

Mr. Conradi first treated of the question whether there is ground for the fear, now very prevalent in Germany among the farmers, that American competition in wheat will continue and even increase in the markets of Europe. He expressed the opinion that the competition is only temporary, and will lessen and perhaps entirely cease in the course of a few decades, the reason being that almost all land in the United States adapted to wheat culture is already planted with that grain. The rapidly increasing population of the country also makes even greater demands on the supply, reducing year by year the quantity remaining for exportation. Should the Americans, however, commence to raise rye, instead of wheat, and overwhelm the European market therewith, a serious competition might arise for German agriculture.

With respect to butter and cheese, Conradi's opinion is that the former is in such great demand in the United States that there is no danger of its entering into competition with the German article. With cheese it is different, as more is produced than is consumed in the country. The surplus until now has been principally taken by England, and there is no prospect of its becoming much of a competitor in the German market.

With regard to meat, Mr. Conradi thinks that it will become a formidable competitor in a few years in the German market with home meats. Although much attention has been paid in recent years in Germany to the improvement of the cattle of the country, American competition will be keenly felt. The method of breeding cattle is different in the United States from that in vogue in Germany. The Americans are much ahead. In Germany, neat cattle are distinguished as milch, fattened, and draft, while in the United States they are used only for milking and slaughter. At the Chicago Fair, Mr. Conradi saw 1,500 head of cattle exhibited, concerning which the unan-

imous verdict was that there was not a single district in all Germany that could show cattle to compare with them.

In the matter of farming, the Germans have not much to learn from the Americans, in Mr. Conradi's opinion. The most they have to learn is in the use of machinery, which is much more intelligently employed than in Germany and of a much lighter character. The Americans act on the principle that when a machine is worked out in a short time, in consequence of active employment, it must have earned the money that was paid for it; and such is usually the case. This intelligent use of machinery is the only thing in husbandry that the German farmer has to acquire from the American. There is, nevertheless, in all departments of agriculture, more rationality exhibited than in Germany. In America, every man works with his own capital and owes the excellent results he achieves to his own sagacity and industry. Mr. Conradi praises the American agricultural experiment stations very highly, and says they are useful in every sense of the word; that the ambition of those connected with them is to obtain practical results, while in Germany the great aim is to reach scientific conclusions. In Germany, the experiment stations are generally in cities.

What Mr. Conradi says in respect to American meat and cattle would seem to be worthy of the serious attention of our stock-raisers and meat-exporters, and a systematic and prolonged effort might be advantageously made to acquire an extensive market in Germany for our beef and pork.

The reports made by some of our consuls in 1883 on cattle and dairy farming show that, for general purposes, the American cattle are the best in the world, and their assertions are borne out by what was declared by Mr. Conradi at Dortmund. Germany is now importing annually about 44,000,000 pounds of meat of various kinds from the United States, and could, with reasonable effort, be made to take much more. The little duchy of Hesse, in which this consular office is situated, requires about 8,000 head of oxen annually to make up the deficiency in its own supply. Home-bred meat is dear in Germany and not equal in quality, in my judgment, to American meat. American cattle are raised on wide tracts of land, where they have fresh air and freedom and plenty to eat, while the cattle in some parts of Germany are fed a good deal on the refuse from distilleries. I have been told by tanners that this distillery food fattens or bloats the cattle, but it makes their hides poor.

JAMES H. SMITH,
Commercial Agent.

MAYENCE, *April 21, 1894.*

TOBACCO INTERESTS OF CUBA.

Consul-General Williams, of Habana, transmits in pamphlet form a report submitted by the board of directors of the Cigar Manufacturers' Union, of Habana, on February 5, 1894, to the members of the union, giving an account of the work done by the association in defense of the tobacco in-

terests of the island of Cuba, from September 18, 1890, to the date of the report (February 5, 1894).

The preamble sets forth that the purposes of the board of directors in making this recapitulation of the work of the union during the four years covered by the report were to show "that the moment has at last arrived when either the tobacco industry of Cuba will disappear absolutely, subjecting to irretrievable ruin the vast interests represented by it, or the Government will be forced, by perusing the record of so many useless efforts, to listen to our arguments and pay attention to our just complaints."

The first effort of the union, made in the latter part of 1889 and continued early in 1890, was in the line of securing the repeal of the law enacted in 1882 and known by the name of "law of mercantile relations" between Spain and the island of Cuba, which, in the opinion of the union, has proved disastrous in its effects.

These efforts, fruitless, though persistently continued, were coupled with others made with equal perseverance, for the purpose of securing a treaty of commerce with the United States by which no heavier duty than 30 cents per pound should be levied on leaf tobacco, while manufactured cigars should be allowed to enter at no greater charge than $15 per thousand.

In addition to this, strong representations were made to secure the abolition in Spain of the Government's monopoly of the tobacco industry, making tobacco manufacture free, as it is in Cuba.

In the latter part of 1890, the Cigar Manufacturers' Union, the Chamber of Commerce, the Royal Association of Friends of the Country, the Planters' Club, and the League of Importers, all of them established in Habana, resolved to send a delegation to Madrid to confer with the colonial secretary and other proper authorities, and urge such measures as the said bodies deemed indispensable to preserve the wealth of the island and save from ruin its two principal resources—sugar and tobacco.

Don Benito Celorio was appointed to represent the union in this delegation, and he went to Madrid with his colleagues as soon as practicable.

The report gives copious extracts of the conferences held between Señor Celorio and the colonial secretary on December 24, 28, and 29, 1890, in which Señor Celorio showed, among other things, that the principal market for the Cuban manufactured tobacco is that of the United States, where 118,000,000 cigars, out of the 260,000,000 exported from Cuba, are purchased. The total number of cigars annually manufactured in Cuba was given by Señor Celorio as follows: Consumed in Cuba, 40,000,000, of the value of $1,500,000; exported to the United States, 118,000,000; exported to other countries, 142,000,000; total, 260,000,000, of the value of $12,000,000.

About 115,000 quintals* of leaf tobacco and 40,000 quintals of remnants and refuse from the manufacture of cigars are employed in making cigarettes. This raw material represents a value of about $1,500,000.

* 100 pounds each.

Señor Celorio argued that the United States then (December, 1890) manufactured cigars only for their own consumption, but "that the day is not far distant when they will invade with their cigars and cigarettes all the markets which Cuba has at present."

The union does not ask protection. It only wishes that foreign markets be not closed against the Cuban tobacco through unwise Spanish legislation.

The report explains that through new duties imposed in the Argentine Republic on Cuban cigars, cigarettes, cuttings, and leaf tobacco, the market of the country had been absolutely closed to these articles. The duty was $10 (gold) per kilogram (gross weight) on cigars, $8 per kilogram on cigarettes, $7 per kilogram on leaf tobacco, and $6 per kilogram on fine cut.

It also states that a subcommittee of "propaganda" was established in Madrid to attend to all these matters, and gives extracts of all the petitions sent through it and the represenations made.

A recapitulation sums up the work of the union, in the four years referred to, under 13 heads as follows:

(1) Steps taken to obtain the repeal of the "law of mercantile relations."

(2) Urging a treaty of commerce with the United States.

(3) Sending a delegate to Madrid.

(4) Assisting all other associations of Cuba in improving, as far as dependent upon them, the economical situation of the island.

(5) Urging the cessation of the tobacco monopoly in Spain.

(6) Suggesting improvements in the law of trade-marks.

(7) Remonstrating, as forcibly as possible, against the purposes of the former administration (the Conservative) of imposing new taxes on the tobacco industries of Cuba.

(8, 9, 10 and 11) Urging certain political and economical reforms having a direct bearing upon the tobacco industries of the island.

(12) Steps taken upon information received that Germany intended to increase the import duties on Cuban tobacco.

(13) On the eve of a reform in the tariff of the United States, to explain the whole situation and insist upon all the measures which have been suggested and urged since 1889.

ECONOMIC CONDITION OF CUBA.

Consul-General Williams writes from Habana June 30:

I have the honor to inclose, for the information of the Department, a copy and translation of a remonstrance adopted by the municipal councils of the six towns of the district of Remedios and sent to the president of the council of ministers of Spain on the 28th instant. As indicative of the causes that have brought about the effects now complained of by those town councils, I beg to cite the following paragraph from my dispatch of the 8th of August, 1878:

"It is easy to perceive that the more necessity compels Cuba to gravitate to the United States for a market to sell in, and the more Spanish legislation compels her, on the other hand, to go to Spain as a market to buy in, so will her commercial status become abnormal, and in like proportion must the effects in time be disastrous."

REMONSTRANCE OF MUNICIPAL COUNCILS.

[Translated by Consul-General Williams.—From La Lucha, of Habana, June 30, 1894.]

As previously announced, the members of the town councils of Camajuani, Caibarien, Placetas, Vueltas, and Yaguajay met in the town hall of Remedios on the 28th instant for the purpose of agreeing on the terms of a remonstrance to be sent to the Home Government, in view of the ruin that must befall the administration of the affairs of the municipalities if they are deprived of the collection and disbursement of the tax on the consumption of fresh meat. The meeting adopted and sent the following telegram to the president of the ministry, Madrid:

"Representatives of the six town councils of the judicial district of Remedios having met, confirm their cablegram to the Minister of the Colonies of the 20th of May, soliciting the right of collection and use of the entire tax on the consumption of fresh meat, as now practiced. Without the certainty of this income, municipal bankruptcy is inevitable. They must also aver that this island is passing through a difficult crisis. Sugars are selling at ruinous prices, with two to three crops of tobacco in store without demand. It is urgently necessary to open new markets and to adopt measures of safety. Otherwise, the collection of State taxes will become every day more difficult.

"TORRES,
"RUIZ,
"*Alcaldes.*"

"To ZOZAYA,
"*Congress, Madrid:*

"The town councils of the district of Remedios ask the right to the whole of the tax on fresh meat, and explain the crisis now affecting the island, and petition for markets and measures of safety. Please give your effective support to their telegram addressed to-day to the president of the council.

"TORRES,
"RUIZ,
"*Alcaldes.*"

PROGRESS IN GAS MOTORS FOR STREET RAILWAYS.

In a former report (published in CONSULAR REPORTS No. 163, for April, p. 695) some account was given of a street-railway car of the Lührig model, propelled by a gas engine and carrying its supply of compressed gas in cylindrical reservoirs hung beneath the floor of the vehicle. Although of recent invention and somewhat complicated in construction, this car had been worked successfully in Dresden at a net cost of operation so far below that of electric or even horse railways that it seemed to embody the germ at least of a new and important departure in street-railroad equipment, particularly for the large class of lines whereon traffic is limited and varies essentially in volume at different seasons or hours of the day. Through the death of the inventor and other circumstances, the ardor of improvement appears to have been temporarily checked in Germany, and the field of experiment has been transferred to England, where the Lührig patents have been acquired by a syndicate, and the car has undergone, during the past four or five months, modifications which, from trustworthy accounts, have greatly lessened its weight and cost and enhanced its practical value.

A car of this improved type is now worked regularly on the lines of a tramway company at Croydon, near London, and has attracted expert attention from all parts of Great Britain, where the problem of street-railway equipment and management is quite as complicated and difficult as in any portion of the United States. Not less than $70,000,000 is invested in tramway lines within the United Kingdom, with results so generally unsatisfactory, as regards profits to stockholders, that there is a wide and urgent demand for a new and simplified motor or system that will secure equal effectiveness and greater economy in operation. Notwithstanding the relatively dense population of Great Britain, only a small proportion of its tramways as worked at present by cables, steam locomotives, electricity, or horse power are really satisfactory to the public or pay regular dividends. The same need exists there, as elsewhere, for a motor which shall be clean, noiseless, manageable, independent of overhead wires or underground constructions, and, withal, so cheap in initial investment and working expense as to successfully supersede horse cars, to which there are many objections on the score of cleanliness, speed, and economy on lines which have a light or varying volume of traffic.

One important difficulty in the case of every self-contained car lies in the fact that, for climbing grades, starting under full load, passing curves, or meeting sudden falls of snow, a car which, when in motion, can be easily drawn by two horses must be equipped with a motor capable of exerting temporarily 10 or 12 horse power, and for this a considerable weight of machinery is unavoidable. The general defect which has been found in gas motors for street-railway purposes hitherto has been that they have been available only for light traffic, and, if made sufficiently powerful for city lines, their excessive weight and cost would form a fatal objection.

Through the modifications which have been made in the Lührig motor car by the English engineers, these defects are believed to have been practically overcome. The original car was rigged with two double-cylindered gas engines, one under each seat and both working upon the same driving shaft, and weighed, without passengers, 7½ tons. In the improved car but one gas engine is used, the two cylinders of which are set facing each other and both working to the same crank. The engine is located under the seat on one side of the car; the other end of the driving shaft, which extends across beneath the floor of the vehicle, carrying a fly wheel, which steadies and regulates the motion of the engine. By this improvement, the number of working parts, and, therefore, the weight, cost, and wear and tear of the motor have been greatly reduced. What is equally important, in a commercial sense, the motor has been reduced to a form and dimensions which will permit it to be adjusted to cars already built for cable, electricity, or horse power.

But, by reducing the engines to one, the power of the car to start promptly with a heavy load was compromised, and this weakness has been overcome by the momentum of the fly wheel and by the device of keeping the engine con-

stantly in motion while the car is in service and transmitting its power from the crank shaft, through a second-motion shaft, to the running gear by friction clutches under the control of the driver. This is arranged as follows:

The driver, standing on the front platform, has before him the brake wheel and beside him a movable lever not unlike the reversing bar of a locomotive. When this lever is in a vertical position, the engine shaft is disconnected from the second-motion shaft and the axles, so that the car may be at rest while the engine is running free. When the lever is pushed to the right, the second-motion shaft, with which the axles are connected by chain gearing, is brought into engagement by a pinion and friction clutch, which gives the car a speed of 4 miles per hour. Shoving the lever to the left brings into similar engagement a larger pinion, which, without changing the speed of the engine, gives the car a pace of 8 miles an hour, which is the limit of speed allowed by the municipality of Croydon. A second lever is provided for operating reversing clutches whenever, at the end of the line or elsewhere, the movement of the car has to be reversed. The friction clutches, which form so important a feature of the machine, are made of hard wood set between the two discs of iron, and are said to be effective and durable.

There must be, of course, some device to regulate the speed of the engine and keep it as nearly as possible uniform while the car is stopped and under the varying conditions of grade and load. This has been provided for with great ingenuity—first, by a governor, which, when the work is light, cuts off automatically the gas supply from one of the cylinders, leaving the other to do the work alone, and, still further, through a mechanical connection between the governor itself and the lever, already described, which operates the clutches. When this lever is upright and the engine shaft disengaged from the axle gearing, a weight on the spindle of the governor is lifted, which cuts off the gas at half stroke in the one working cylinder, so that, while the engine is running free with the car at rest, it is reduced to half speed, and the explosions are rendered so light and gentle as to be hardly perceptible.

Ordinary street gas is used, condensed to a pressure of 10 atmospheres, and the reservoirs under the floor of the car—which can be filled through a flexible pipe within the time required to change horses—carry gas enough for a run of 8 or 10 miles. The consumption of gas by a loaded car is stated to be 25 cubic feet per mile, which costs, at Croydon, 2 cents. The syndicate under whose management the car now in service has been built and tested is naturally disinclined, as yet, to disclose fully the detailed results; but the editor of Engineering, who has been permitted to examine the experiments somewhat carefully, states his conclusions as follows:

> The car is not noticeably different from a horse car. It runs quietly and easily, emitting neither smoke nor steam, and is quite under control. Inside passengers can hear a slight rumble of machinery and perceive a trifling vibration; but, after a minute or two, these are unheeded, and, practically, there is nothing to detract from their comfort. Neither they nor the bystanders in the street can perceive any machinery whatever, for the engine and gearing are entirely inclosed, the motor lying under one seat and the wheels and clutches under the

floor of the car. * * * It carries twenty-eight passengers in all and makes a very fair speed, the limit allowed by the board of trade being 8 miles per hour. With the slow gear in action, it will readily mount an incline of 1 in 23, with a short piece of 1 in 16, and in coming down, it can be stopped by the brakes in its own length. It also goes round a curve of 35 feet radius on a 1-in-27 grade. Its weight, when filled with passengers, is 5½ tons. For gas, it costs 1*d.* (2 cents) per mile, against 3½*d.* (7 cents) per mile for fodder and bedding for horses; so that the gas-motor car starts with an advantage of 2½*d.* (5 cents) per mile. The performance of the car is quite satisfactory.

The main question, which remains to be decided by prolonged experience, would seem to be that of net cost of maintenance. The initial cost of the motor car is about the same as that of an ordinary horse car and the eleven horses which are required on well-managed lines to operate it. The point to be determined is, whether it is or is not cheaper to keep one gas engine in order than to keep in health and serviceable condition eleven horses, and whether the machine will last longer in service than the animals. When the motor car is not needed, it costs nothing but a shed to shelter it, while the horses must be fed and cared for. From the English standpoint, the horse car is the only system that offers any serious competition with gas, and, as the latter starts with an advantage of 5 cents per mile in the cost of material consumed, its victory on a large majority of the lines in that country would seem to be more than probable.

A special motor car of the type above described, combining all the improvements thus far made and reduced to the utmost limit of simplicity and lightness, is now being constructed in England, to be carried to the United States for exhibition and trial in October. Its performances will doubtless merit the attention of all who are interested in the complicated subject of city and suburban transportation.

FRANK H. MASON,
Consul-General.

FRANKFORT, *July 9, 1894.*

PEACH CULTURE IN BELGIUM.

In ordinary seasons, the Kingdom of Belgium, which is not larger than the State of Maryland, after supplying a population of 500 to the square mile, exports 105,000,000 pounds of fruit. Last year, although not a drop of rain fell from the 1st of March to the middle of August, the markets were glutted, and the value of the foreign shipments rose to $3,000,000. A very large percentage—the ratio is not stated in the report from which I quote—was peaches, and peaches of the finest varieties.

It has occurred to me that there are other causes than the nearness of the Gulf Stream and the warm winds from Sahara for the fact that Belgium, lying abreast of Labrador, though of equal temperature with our interior States, should so far surpass these in the production of peaches. With similar geological formations, soils, and climates—a year's residence in Liege has presented just such meteorological phenomena as I have witnessed in Indi-

anapolis, Louisville, St. Louis, and Leavenworth—there can be no natural reason why the one should not produce—and with equal certainty—everything grown in the other.

Thirty years ago, Kentucky was unsurpassed in the production of this fruit. Neither in New York, when Delaware and New Jersey had shipped their harvests thither, nor in California, nor in any of the capitals of Europe have I seen finer peaches than were once grown in the blue-grass country. And this was true, no doubt, of the entire section I have indicated. But now all is changed; where orchards formerly flourished, a tree is hardly to be seen; where the fruit was once large, ruddy, and delicious, only a few pale and insipid seedlings are to be found. The farmers say that the climate has changed; that in denuding the lands of their forests they cleared the way for the winds; that constant cultivation and artificial fertilizing have changed the character of the soil, and this conclusion is fully confirmed by the experience of the Belgians.

As long ago as the invasion of Cæsar, this country was famous for its fruit; but the extension of systematic agriculture in the Middle Ages denuded the land of its woods, and crops became capricious.

When a people has increased to 500 to the square mile, a conservative government can leave nothing to chance. Since the revolution of 1830, therefore, the State has looked after its every industrial enterprise with paternal solicitude. Agriculture—food-producing lying at the base of them all—has, perhaps, been the most zealously fostered. Every conceivable device has been tried to make two blades of grass grow where only one grew before.

In fine soil and in situations protected from the north and northeast winds, peach trees grown from the seed have, in all the past, occasionally borne fruit; but the Kingdom of Belgium is to-day a kingdom of uses, and everything must do its duty or perish. To ascertain the best stock upon which to bud, a long series of experiments were tried again and again upon all the varieties of prune, the apricot, sweet and bitter almonds—every tree, indeed, of a kindred nature—till the conclusion was reached that the best stem for grafting is the red plum, found in many places in the United States. This hardy plant, whose roots spread wide and strike deep, imparts much of its own vitality to its foster scions. Grafting or budding is done out of doors, so as not to soften the young tree by accustoming it to unnatural conditions.

The next question they considered was that of soil. In sandy and dry earth, it was found that neither the plant nor the peach flourished, the one being spindling and the other small, while in rich and moist alluvial, the tree prospered at the expense of the fruit. A calcareous soil, neither wet nor dry—and this nature has partially supplied to our Middle States—is preferred by the peach, the young trees requiring a great deal of lime. As it is impossible to tell, without chemical analysis, the exact amount of this element contained in any given quantity of earth, its application must be more or less experimental. However, the rule here is to first thoroughly fertilize the soil

with guano or chicken ordure, and then, after planting the tree, add a peck of lime to every cubic yard of earth, placing it near the surface. As it is necessary to loosen the earth for at least 6 feet square and 3 feet deep, this quantity—a bushel to the tree—may seem large; but the authorities are all agreed that more rather than less would be better. The application should be repeated every three years.

Turning from the standard tree, which too often failed to be profitable, they experimented with espaliers (wooden railings); but these were found to be so open and exposed that the young trees fared very little better upon them than in the orchard. They next tried the wall, not as in England, where mural inclosures are built at great expense for the special protection of delicate fruit, but the sunny sides of their houses, and met with such astonishing success that there are few houses to-day in Belgium upon whose southern exposures trees are not trained. No chateau is too grand and no cottage too humble to furnish them protection and support. Last summer, I saw ripening upon the gable end of a town house—a surface of about 30 feet square—2,327 peaches, and every one of them larger than a hen's egg. There were four trees, two of them with dwarf stems not more than 12 inches high and branches 6 feet long and radiating like the ribs of a fan, and two "riders" (bushes grafted upon tall stocks) whose boughs began to spread where the others terminated. The projecting limbs had, of course, been removed and all their vitality forced into the lateral branches. Any Californian can beat this, perhaps, but trees out there flourish in the open and are permitted to retain all their limbs. I take it for granted that everybody knows the limbs of wall trees are comparatively few in number and are held in their positions by strips of strong canvas.

Now, there are many thousand acres of southern wall of almost tropical heat in our Middle States which, if utilized in this way, would furnish a certain and abundant supply of peaches to every family within their limits. Why should the ivy, the wisteria, and the Virginia creeper be brought from afar to break the force of the sun and beautify homes when the peach, which is at hand, surpasses them all in foliage and in flowers and closes the year with a harvest of fruit? Nothing grown on the earth yields a larger dividend of pleasure or of profit. The labor of planting, training, and protecting is practically nothing, as it could all be done on rainy days and at odd hours, when idleness in the country is apt to be oppressive.

At the time of flowering, it is always necessary to shield the buds from the action of frost, and this is done by various methods, the best of which experience has shown to be the placing among the upper boughs of the trees of branches cut from other green trees. This plan has been attended by good results, though it should be employed with great caution, as too much shade is apt to stifle the germs by excluding the rays of the sun. Another method, until recently very much in vogue and always effective, is the employment of mosquito netting or other cheap material with meshes large enough to admit the free passage of light and air. The old custom of using closely

woven cloth, like table or bed linen, at night and removing it in the morning, is said to be more dangerous than the frost itself, as the trees at this season can not be deprived of air without serious injury; besides, this artificial heat at night, succeeded by the warmth of the sun, hastens their blowing, when the object is to delay it as long as possible. Shading at noon is sometimes as essential as covering at night. The poor succeed very well in protecting their fruit by placing a number of horizontal poles about 18 inches apart and from 4 to 6 inches from the trees and covering them with light wisps of straw, but this device is unsightly and makes a deal of litter.

In good situations, penthouses (sheds of wood, thatch, or straw projecting 18 or 20 inches from the wall and covering the tops of the trees) will sometimes suffice to protect the fruit. In any case, they are extremely useful in checking the flow of the sap. Since 1876, the following addition to this method has made assurance doubly sure. A fringe made of unthrashed rye straw by tying the cut ends of the stalks together with twine or garden cord, six or eight in a loop, with spaces of about 3 inches between the wisps, is attached to a neat pole and suspended under the eaves of the penthouse and in front of the trees. The texture being open, it does not prevent the light and air from reaching the buds. One might be tempted to believe that this method would hurry the blooms, but it has, in fact, the very opposite effect. The brilliant surface of the straw, by reflecting the sun's rays, keeps the temperature beneath lower than that on the outside. These shields are usually placed in position about the 1st of March, and are not removed, except in cloudy weather, until all danger from frost has passed. Water from the roof is never permitted to fall upon a tree. When not carried off by gutters, the penthouse is always employed.

NICHOLAS SMITH,
Consul.

LIEGE, *April 10, 1894.*

ELECTRICAL SANITATION.

Sanitary questions are of such importance that I need make no excuse for describing in a consular report a new process, which, it is claimed by the inventor—M. Hermite—will overcome many of the difficulties inherent in the ordinary, crude method of dealing with town sewage. This process may be appropriately called "electrical sanitation."

The researches of Faraday, the eminent English chemist, made more than half a century ago, into the effect of the electric current on a solution of chloride of magnesium, was, no doubt, the starting point or germ from which M. Hermite evolved his system, which he has conducted experimentally in Havre, Rouen, Lorient, and other French towns.

This so-called system is based on the electrolysis of sea water. The electric current is used to decompose the chloride of magnesium, while the chloride of sodium serves as a conductor. The result is a liquid disinfectant

of great power, which is almost odorless, leaves no residuum when used for purposes of flushing, and is said to be inoffensive. It is further claimed that the solid organic matters in sewage are consumed or dissolved in this liquid, leaving an odorless fluid, incapable of fermentation, and containing only a few phosphates, the salts of ammonia, and the salts of the disinfectant. The action of the liquid on germ life is peculiar. In an address delivered at the Hotel de Ville, Havre, on the sanitation of the city, M. André Dubosc, the eminent savant, gave a very clear explanation of the way in which microbes are destroyed by the Hermite liquid. He said:

> Microbes may be divided into two great classes—anaërobiotic organisms, which exist without air, and aërobiotic organisms, requiring air to live. On the anaërobies, or microbes living without air, the action of the compound of chlorine is simple, as the freeing of its oxygen causes their instant death, inasmuch as in presence of that gas in excess, as their name indicates, they can not exist. With regard to the aërobies, their death is brought about by chemical means. The fatty principles, particularly abundant in sewage matters, are specially concerned; the oxygen is absorbed, the volatile fatty acids liberated, and these undergo so strong an oxidation that they often result in the appearance of formic acid. The equilibrium of the chemical medium of the microbe being thus destroyed, it perishes as an individual would perish after swallowing vitriol or inhaling sulphurous acid gas.

Other experts who have looked into the system, while admitting the disinfecting properties of the electrolyzed sea water, or mixture of sodium and chloride of magnesium, have expressed some doubt as to whether the liquid could be produced in sufficient abundance and at a sufficiently cheap rate for large towns, including the sewers and streets to be irrigated with it. But the experiments at Havre, where there is an unlimited supply of sea water, have demonstrated quite the contrary, so far, at least, as quantity is concerned; but there is not a unanimous consensus of opinion on the question of economy. It may be safely said, however, that the application of the system would have the advantage of saving a large proportion of the water usually employed for the flushing of soil pipes and drain pipes, as well as the much larger quantity employed in flushing sewers and washing gutters. How far this would compensate for the expense of the plant, etc., must, of course, depend upon the value and quantity of water ordinarily used.

An adequate and wholesome supply of water is one of the problems which confronts every community, and it should not be forgotten that the demand increases steadily with the expansion of population and the growth of civilized habits. At present, about one-half of most water supplies is wasted in flushing drains and sewers and in cleaning streets, and it is quite conceivable that the use of electrolyzed sea water for these and other purposes, in towns not remote from the seaside, would add immensely to the store of potable water. But, apart from this important question, a system under which sewage can be robbed of all poisonous and noxious properties by chemical treatment is an ideal one. The use of antiseptics is becoming a new law of life. It now remains only to apply it to the disposal of our sewage, and thus to free soil pipes and sewers of all septic matters would be to destroy some of the deadliest diseases afflicting us.

Although sea water renders the application of the Hermite method considerably cheaper, it is not essential to it. When sea water is not procurable, a solution of chloride of magnesium can be used instead. Here a parallel chemical action is produced, giving precisely similar results. In every instance a central station has to be constructed and supplied with the necessary electric plant and convenient tanks, in which the disinfectant is prepared in sufficient quantities. By a simple arrangement of pipes the electrolyzed water is distributed through the streets, like the water for domestic use or like gas. It can also be conveyed into houses; and the contents of water-closets, after being treated with the disinfectant, will help to purify the main drains and sewers, instead of adding to their general contamination. The hygienic character of dwellings, so far as the absence of sewer gas is concerned, would obviously be greatly increased by this means, since there would be none of this deadly gas to escape through defective pipes and traps; and it has, moreover, been demonstrated by French bacteriologists that all these microscopic forms of life which "live and move and have their being" in sewage, and which wage a constant war upon the human race, will rapidly perish in the electrolyzed solution.

The report of a scientific and technical commission, composed of eminent sanitarians, chemists, and engineers, appointed by the municipal council of Havre to investigate the Hermite system, has just been given publicity. This commission, after prolonged experiments made at Havre on an elaborate scale, has formulated the following conclusions:

(1) That electrolyzed sea water is a powerful antiseptic and germicide.

(2) That the activity of the agent is in proportion to the quantity of chlorine, that is to say, an equal weight of chlorine acts more energetically and efficaciously in 10 liters of water than in 20 liters, and in 5 liters than in 10.

(3) That the disinfecting action of the liquid is not instantaneous, but continuous as long as there is an excess of chlorine remaining.

(4) That 5 grams of active chlorine will, with sufficient time, completely disinfect the excreta of a normal "stool" or dejection, and after two hours of contact all pathogenic germs will be destroyed and disappear.

The commission does not hesitate to declare the great value of M. Hermite's process of sanitation by electrolyzed sea water under the following conditions:

(1) That, to act efficiently on the material to be disinfected, the electrolyzed water must be in sufficient quantity, and contain a minimum of five-tenths of a gram of free chlorine per liter.

(2) That the excreta must be kept in contact with the liquid, in the siphon of the closet or other receptacle, a sufficient length of time to insure the antiseptic action of the liquid before being discharged into the gutter or sewer.

From a financial point of view, the commission declares that the results obtained during the experiments with the Hermite system in the quarter St.

Français at Havre show that, while the system gave excellent results from a sanitary standpoint, it can not be considered an economical system, but requires further study and improvement before it can be recommended as applicable to large cities. Some doubt, moreover, is expressed as to whether a chlorine liquid of the kind can be applied freely to dwellings without producing disagreeable, if not unwholesome, effects and without destructive corrosion of metal pipes. The chlorine gas, it is believed, will pervade the house to a greater or less extent, imparting its disagreeable odor to articles of food with which it may come into contact and irritating the lungs of the occupants of the dwelling.

But, in spite of the several objections which have been urged against the system, it is believed by many who have witnessed its application at Havre and other cities of France, that M. Hermite is engaged in an enterprise of great pith and moment, and that electricity may yet be made as useful to man as a shield against death by preventible disease as it has already proved itself a priceless servant as a messenger and an illuminant. Certain it is, the last word has not been spoken in favor of treating sewage by electrolysis.

C. W. CHANCELLOR,
Consul.

HAVRE, *May 24, 1894.*

TANNING QUALITIES OF CANAIGRE.*

Prof. Eitner, director of the experimental station for the leather industry in Vienna, has made numerous experiments with the newly introduced American tanning material canaigre, and the information relative to its tanning qualities contained in this report is derived from his writings. Canaigre has the property of tanning leather in a short time and of giving it a brighter, clearer, orange color than has been obtained by any other tanning material. The leather is soft, neither shrinks nor swells, and, although rapidly dyed, is strong and not at all brittle.

Canaigre is especially adapted for the tanning of upper, saddlery, and fancy leather, but it has also been used with good results at the Levinische Fabrik, Trieste, in the tanning of sole leather, particularly sole leather for the finer kinds of ladies' shoes. In the treatment of leather for ladies' shoes, the canaigre is added to pine bark. It affects the leather first, and causes the pine to act more quickly and evenly than it would otherwise do.

In the process of the manufacture of sole leather, canaigre is used to some extent.

In the Levinische Fabrik, in the final tanning process of skins which are to be used for sole leather, the skins are treated with a powerful mixture of extracts.

* See "Canaigre as a Substitute for Barks in Tanning," CONSULAR REPORTS No. 163, p. 679.

In the first bath, to which the skins are subjected for sixteen days, 7 German pounds* of oak bark and 2 pounds of canaigre or valonia are used. In the second bath, which lasts twenty-four days, there are 6 pounds of oak bark and 3 pounds of canaigre; and in the third, which lasts thirty days, 5 pounds of oak bark and 3 pounds of canaigre or valonia. Very strong skins sometimes receive a fourth bath.

In tanning with extracts, canaigre seems to have a special value in giving color and strength. Even when used in small quantities with other powerful extracts there is a noticeable difference if canaigre is used instead of valonia, the leather having a brighter yellow color.

Canaigre is better than any other material for retanning leather which has been imperfectly tanned.

Canaigre is very similar to gambier in its tanning properties, and, if it is ever to be exported in large quantities to Europe, it will have, for the same amount of tanning power, to be as cheap as, or cheaper than, the last-named article. It is for this reason that gambier has a particular importance for anyone interested in the sale of canaigre.

The firm of Blau & Schindler, of Hamburg, has imported more canaigre than any other continental firm, but, according to its own statement, has only imported it in small quantities, as it is not cheap enough at present to compete with gambier. Practically, the entire crop of gambier is shipped from India to England, and thence exported to the other European countries and to the United States. According to the board-of-trade returns, the imports of cutch and gambier into Great Britain during the first three months of the years 1892, 1893, and 1894 amounted to £1,972,498, £1,178,275, and £1,588,008, respectively. Gambier proper sells in Vienna or Hamburg at $8 per 100 kilograms (220.46 pounds), while cutch, or wood gambier, is cheaper.

Mr. Collingwood, of the agricultural experiment station in Arizona, has carried on numerous experiments in the cultivation of canaigre, and the best and most authentic information on the subject is to be had from his reports.

DEAN B. MASON,
Vice-Consul-General.

VIENNA, *May 25, 1894.*

*1 German pound=1.1 American pounds.

NOTES.

Phylloxera in Spain.—Consul Adams writes from Cadiz, July 4:

I have the honor to report the probable presence of phylloxera in the vineyards of a portion of the Jeres de la Frontera wine-growing district to an extent that threatens serious results to the future of the industry, unless prompt and effective measures are adopted to check the spread of the plague. The Chamber of Commerce of the province has taken official cognizance of the invasion, and under its direction the agricultural engineer-in-chief is conducting investigations with a view to determining the extent of the infected area and devising means of preventing the infection of other districts. As yet, he has made no official report, but the local papers state that he has conceded the presence of the disease in two or three districts. Some of the principal proprietors of vineyards are discussing the feasibility of importing American stocks, upon which to graft the native vines, in the event that the ravages of the parasite should render it necessary. This was the remedy successfully adopted at Bordeaux, France, which suffered seriously from the plague some years since. The consensus of opinion at Jeres de la Frontera, however, is that the American stocks would not give satisfactory results in the sherry district, even though they should effectually resist the attacks of the phylloxera.

Under date of July 9, Consul Adams says:

The Government at Madrid, according to telegrams published in the papers of this city, has voted a credit of 500,000 pesetas ($100,000 Spanish) to be applied to the extirpation of the plague. The method to be pursued has not, as yet, been indicated.

Phylloxera in Portugal.—Under date of March 31, Consular Agent Mertens, of Grao, Spain, transmits the following:

The dormant state in which the once flourishing wine-export trade of this province has been kept since the French import duties on Spanish wines were raised has at last been broken by an active export to Portugal and to Brazil, owing to the appearance of phylloxera in Portugal, which has done great injury to its vineyards and obliged its wine merchants to cover their loss with the Spanish product.

The export to Brazil for account of Portuguese firms has been rather lively during the last two months, and a continuation of this state of affairs is expected for some time, thus insuring a good outlook for wine merchants, coopers, dealers in staves, and for steamer freights. This, together with the high rate of exchange, which, unfavorable to importing merchants, benefits the export trade, gives a bright outlook for the commercial interests of this port.

American-Spanish Trade.—Consular Agent Mertens, of Grao, March 31, reports as follows concerning the trade between Spain and the United States:

Although the statistics show a lamentable decline of trade between the United States and Spain compared with former years, it can be asserted that it has not really fallen off to any great extent, for the trade is still carried on indirectly. Goods from the United States are

shipped to Spain by way of England or France, and merchandise from Spain to the United States is sent via the same route for transshipment, greatly to the disadvantage of the goods, shippers, and receivers. If an American line of steamers plying between American ports and the Mediterranean could be established, touching at least two Spanish ports in going to any French or Italian harbor, a sure and profitable business would be the result in a very short time. Spanish importers would avail themselves of this opportunity to increase their orders for American articles, with whose superior quality they are already acquainted, and would receive their goods, also, in a better condition and at lower expense than by indirect means. Of export from Spain to the United States there are sufficient goods, for nearly every season of the year, to make it worth while for a steamer bound from the Mediterranean to the United States to touch at one or two Spanish ports and carry freight which now goes via England or France. A regularly established line of freight steamers would surely help to promote a brisker trade between the United States and the countries bordering on the Mediterranean.

New Disease of the Orange Tree.—Consular Agent Mertens reports from Grao, Spain, under date of March 31:

During March, a new disease of the orange tree was discovered in the province of Castellon, which threatened to spread over the orange groves of the district. The "serpeta," as it is called, appears in the form of a mildew on the branches of the tree and causes the leaves to turn yellow and decay, which must eventually affect the fruit also. At present, it is subject to scientific study by a commission composed of agriculturists, naturalists, and chemists, and for its immediate remedy, it has been advised to rub the affected branches with petroleum.

Wheat Crops in the Argentine Republic.—Minister Buchanan writes from Buenos Ayres, June 7:

Knowing the important relation the last crop of wheat produced here and now being marketed has to the value of the maturing wheat crop of the United States, I have given careful attention and considerable time to securing estimates in relation to the subject. The results of my investigations are herewith submitted for the information of the Department, with the statement that the estimates are, I think, approximately fair and as correct as it is possible to secure.

The last wheat crop was a phenomenal one in yield; a fair estimate of the various reports will, I think, place this at 17 bushels per acre. This is 4 bushels more than the accepted average yield for the year previous. I think the average for 1892—13 bushels per acre—can be taken as the normal average production, and that the last year's yield should be considered extraordinary and yet to be proven.

The quality of the last crop seems to be below the average. From carefully collected data, I estimate the quantity exported for the first three months of this year at 900,000 tons, or 36,000,000 bushels, and a conservative quantity in store for export or to be carried over by the producer (in excess of the quantity required for consumption), I think, would be 750,000 tons, or 30,000,000 bushels.

In regard to the acreage for this year, it is a fair assumption to place the increase in acres over last year at 20 per cent. It is hardly probable, however, that the yield will be as great, so that it might be a safe estimate to say that the probable crop for export next year would be only a slight increase in bushels over this year.

The most careful observation as to the prices received at different points and on different dates leads me to believe that the producer has received for his wheat crop, now being sold, an average of 37 cents (gold) per bushel.

The corn crop was a comparative failure last year, and no figures are obtainable as to its extent. There is enough in the country, it is believed, to meet the wants of the people, although it is selling to-day for more than wheat. The acreage will not be as great, it is thought, as last year, owing to the failure of the farmer to produce a good crop during several years past.

There have been about 10,300 tons of flour exported, mostly to Brazil, during the first three months of the year, indicating a probable output for the year of 30,000 tons, or three times the output of the previous year.

Crops in New Brunswick.—Commercial Agent Benedict writes from Moncton, July 9:

In this section of New Brunswick, crops of all kinds are in a most promising condition, and the prospect is for an abundant harvest. The grass never looked better, and, from present indications, the hay crop will be an exceedingly heavy one. The potato crop will probably be fully up to the average, although the potato bug seems to be in greater numbers than usual. The farmers have grasped the situation and are fighting them successfully. Barley, buckwheat, oats, and wheat are looking well, and heavy crops are anticipated. Owing to the low price of flour, farmers have sown more oats and less wheat than formerly, as they find oats a more profitable crop. The cultivation of corn is being prosecuted on a more extensive scale than ever by the farmers, a number of whom have silos. The corn is also fed green and cured the same as hay; some prefer the latter method to the silos. There was an unusual abundance of fruit blossoms, both wild and cultivated, and the outlook for a large crop is excellent.

Cotton Machinery in China.—Consul Read writes from Tien-Tsin, China, June 8:

The customs taotai of this port, representing officially and as an individual the big cotton mills now being erected at Shanghai and elsewhere in central China, has placed orders with a European firm in Tien-Tsin for cotton-mill machinery amounting to nearly $1,000,000 (Mexican). It is said that these orders will be executed for the most part in England.

I trust the Department can make use of this information in such a way as to call the attention of our manufacturers of cotton machinery to the fact that the mills which are now springing up in several quarters in China are to be supplied with machinery. I understand that there are certain kinds of cotton-mill machinery manufactured in our country which are productive of better results and are as cheap as, if not cheaper than, similar machinery made either in England or on the Continent. Where such superiority exists, our manufacturers are assuredly sensible of the fact, and, in such instances, they should endeavor to obtain a fair share of the orders now to be placed.

American Flour in Italy.—In his annual report upon the commerce of his district for 1894, Commercial Agent Huntington, of Castellammare, under date of July 1, referring to his report upon the "Extension of Markets for American Flour" (CONSULAR REPORTS No. 163, p. 734, and Special Consular Reports on the "Extension of Markets for American Flour," p. 279), writes as follows:

A circular from the Department was received at the close of 1893, requesting a report on the prospects of increasing the demand for American flour and grain in this district. Since

my special report on the subject, I regret to say that the Italian Parliament has increased the import duty to 8 lire ($1.54\frac{4}{10}$) per quintal, materially changing my calculations. Notwithstanding, the prices of grain, wheat flour, and bread are steadily diminishing. Speculators for the rise at Torre Annunziata suffered severe losses on their purchases prior to the increased duty, and many failures have ensued in consequence.

American Flour in Shanghai.—Under date of May 8, Vice-Consul-General Hunter transmits the following statistics:

The quantities of American wheat flour imported into Shanghai during the years 1891, 1892, and 1893 were 4,474,838 pounds, 4,213,789 pounds, and 4,796,429 pounds, respectively. American wheat flour is the only wheat flour imported. Wheat is not imported from any country. Flour and wheat are duty free. Shanghai facilities for monetary exchange are ample. Flour is imported in steamers and sailing vessels from New York, Tacoma, and San Francisco. The flour consumed in Shanghai is consumed nearly altogether by foreigners, and the trade is worked to its full extent.

The Electric Light in Rome.—Under date of June 8, Consul-General Jones, of Rome, transmitted to the Department a pamphlet written by Dr. Banti, entitled "Il Transporto di Energia Elettrica da Tivoli a Roma," together with a translation of the same, both of which are filed in the Bureau of Statistics. The pamphlet gives full details of the plant and appliances used in transmitting 2,000-horse power a distance of 18 miles across the Roman Campagna. The pamphlet is profusely illustrated. The consul-general says that Rome is the first city to be lighted by electricity at a long distance. Italy is essentially agricultural, producing no coal, but having magnificent water power, and her future industrial development may spring from the transmission of energy generated by water power.

Shipping of the United Kingdom.—Under date of June 19, Consul Howells, of Cardiff, transmits the following statistics:

The annual statement showing the navigation and shipping of the United Kingdom, which has just been issued by the commercial department of the Board of Trade, shows that the growth of the shipping trade, which has long been phenomenal, still continues. The total number of vessels which entered the ports of the United Kingdom during the year 1893 was 380,288, against 376,507 in 1892 and 372,150 in 1891. The tonnage of these vessels shows an even greater increase, being 85,692,637 tons, 87,087,970 tons, and 88,964,468 tons for 1891, 1892, and 1893, respectively.

Shipping at Cardiff in 1893.—Consul Howells, June 19, transmits the following statistics, gleaned from the annual returns of British shipping and navigation for 1893:

The number and tonnage of British and foreign sailing and steam vessels, including their repeated voyages with cargoes and in ballast from and to foreign countries and British pos-

sessions and coastwise, which entered the port of Cardiff in the year 1893 were as follows: Of the vessels with cargoes there were entered 4,750 with a tonnage of 1,396,726, while 11,951 cleared with a tonnage of 6,566,299. The number of vessels in ballast that entered was 9,098 of 5,726,876 tons, and the number that cleared was 1,752 of 559,883 tons.

The sailing and steam vessels on the register of this port in the year 1893 were as follows: Sailing vessels, 70 of 8,973 tons; steam vessels, 228 of 173,591 tons.

The following comparative figures are of special interest, showing the number and tonnage of ships of all kinds, including their repeated voyages, entered at this port during the years 1889, 1891, and 1893:

Year.	Vessels.	Tons.
1889	13,287	6,027,420
1891	13,383	6,611,768
1893	13,848	7,123,602

Patent Designs in Belgium.—Under date of June 7, Consul Morris, of Ghent, transmits the following:

The Belgian law now in force provides that all plans, designs, and models of patented articles, deposited in view of securing an exclusive privilege, shall be kept in secret, unless litigation arises in respect to them. By reason of this secrecy, many persons may be working to invent some article which is already patented, but of whose details they have no knowledge. The Chamber of Commerce of Ghent has inaugurated a movement to secure the public exhibition of all patents as a reasonable concession to possible inventors. Under the present law, a great hardship is inflicted upon those who only at the completion of their task learn that some other person has already the exclusive right to manufacture and sell the special article "invented anew."

Consular Reports Transmitted to Other Departments.—The following reports (originals or copies) were transmitted during the month of July to other Departments for publication, or for proper action thereon:

Consular officer reporting.	Date.	Subject.	Department to which referred.
E. Whidden, St. Stephen, N. B.	June 26, 1894	Crops of St. Stephen, N. B....	Department of Agriculture.
N. Smith, Liege	June 18, 1894	Crop prospects in Belgium.....	Do.
H. J. Sommers, Bombay	June 14, 1894	Bombay agricultural reports...	Do.
J. S. Benedict, Moncton, N. B.	July 9, 1894	Crops in New Brunswick.....	Do.
E. Schneegans, Saigon	June 2, 1894	Rice market of Saigon.....	Do.
Do	May 19, 1894	.....do.....	Do.
L. W. Myers, Victoria	July 12, 1894	Shipping of crews.....	Treasury Department.
L. Le Mescam, Nouméa	May 14, 1894	Niaouli tree.....	Department of Agriculture.
J. Muth, Magdeburg	May 8, 1894	Sugar-beet cultivation.....	Do.
E. W. S. Tingle, Brunswick	May 28, 1894	Beet-sugar technical school.....	Do.
V. Vifquain, Panama	July 12, 1894	Shipping of crews.....	Treasury Department.
C. H. Chancellor, Havre	.....do.....	.....do.....	Do.
E. R. Landgraf, Bloemfontein	Mar. 31, 1894	Industries of the Orange Free State.	Department of Agriculture.
J. H. Smith, Mayence	Apr. 21, 1894	American vs. German farming.	Do.
J. M. B. Sill, Seoul	.....	Seeds of Korean ginseng.....	Do.

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